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A Reader's Digest Publication

Canada's Computer Information Source

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## A moody, distracted crowd



eral mood of uncertainty since Sept. 11. If you follow the economic news, you know some sectors, notably air transportation and tourism, fell off a cliff shortly after terrorist attacks in the U.S. But even before, the economy was showing signs of slowdown.

The personal computer industry, which has been spurred by double-digit growth for years, has seen its bubble burst too. IDC, Canada's latest report notes that PC shipments in the third-quarter of 2004 declined by 17.5 percent, compared to the same period a year ago. That works out to around three quarters of a million PCs being sold in Canada, from July through September.

One topic that's received more notice in technology quarters is the role Microsoft's latest operating system version, Windows XP, will play in revitalizing a stagnating PC industry. For PC owners who use the Windows 9x family (95, 98, and Me), XP is one of the most significant product releases of the year, but less so for users of Windows NT or 2000. Windows 9x was always the friendly and willing OS, albeit sometimes flaky, while NT was more stable but demanding.

While this is something of a simplification, in Windows XP, Microsoft has used the more stable NTFS3000.com, so we wrapped it with consumer-unfriendly features, such as drivers support for a broad set of peripheral devices, and apps that in some tasks like printing digital images or communicating over the Internet. The Windows graphical interface gets a makeover in XP too. Unlike like NT, formerly like 9x, was a primary message during the Windows XP launch event in Toronto. But oddly, and maybe ironically, even the Dell 29 must played to a subdued and distracted crowd. Pacific

had to be related to the malware in the industry and the mortality shown shortly after. But also it was simply literary satire: storms that conspired against Microsoft Canada's festivities, held in a large tent. Presumably and understandably members tried to stay focused while the chandeliers, tree gliders crashed ominously and the fabric moaned and flapped in the wind. Only one question was asked during the Q&A afterwards: whether Windows XP would help PC sales.

Questions about the controversial Product Activation requirement weren't even asked. When I attended a Windows XP briefing in Redmond, Wash., in February, there were more than a few product reviewers seated at Microsoft's primary session, but Microsoft group president, Jim Allred, said the company would be confident in its portfolio of activities, but activities never ends, noting the Windows 2000 kernel for XP has to be good news. Among the technology journalists and software engineers I'm in contact with, there's one universal agreement that Windows 2000 is hard and shouldn't show any version of the fix has where it comes to stability, although driver and application support, especially for games, can be problematic. Likewise, based on the feedback I've received from people using the beta versions of XP, there are at least a couple of bugs that have been fixed, but as with previous Windows upgrades, that has to be qualified with "as long as you have a comfortable hard disk and enough horsepower" (150-MHz processor and 128 MB of RAM recommended).

A coming event that may have suffered from post Sept. 11 malaise is the annual Fall Comdex show in Las Vegas. Some news reports have predicted that attendance this year might be down by 33 percent or more.

But we've been receiving so many boofing invitations from exhibitors as we have in previous years, and we still consider it one of the most important technology show-

uses of the year, so in short, we'll be attending. The show takes place Nov. 12 to 16, right around the time that we'll have the store. We'll have a show report in the following issue, along with daily updates on [CanadaComics.com](http://CanadaComics.com).

A couple of products we'll be curious to see are the Ericson Chaperon and Rembrandt Virtual Keyboard. The press release on the Chaperon says it "transmits and stores handwritten text and graphics from digital paper wirelessly via Bluetooth." We don't know what that means, but hopefully we'll find out. The Virtual Keyboard is described as "a small hand-like device that attaches to the palm of the hand and allows users to type on any surface as if it were a keyboard."

One technology for which we've received a number of product announcements is recordable DVD. There are at least six different DVD-R formats, but we would not recommend this as a no-brainer purchase, not the least in which is the three competing specifications DVD-R, DVD-RW, and DVD-RAM, that with 26 to 40 GB hard drives now common, the 850 MB capacity of recordable DVDs is quite inadequate for backups, so the need for the multi-gigabyte capacity of recordable DVD arises.

Likewise, there seems to be a growing interest in DVD movie mastering, and a couple of the invitations we've received are to see various DVD-authoring tools. With digital video camcorders approaching \$1,000, and new DVD-enabled editing tools like iMAGE Video/Wire 3, this will become a technology to watch over time.

Enjoy the novel!  
David Tanaka, Editor





# The Computer PAPER

— a division of Computer Information Systems —

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Two takes on the Windows XP series for Windows XP preview Part 3 (see the November issue). I really like your way of explaining things in sounds like most of us talk

ing to ourselves while trying to install new stuff. Great tips too, they will come in handy.  
Stephen Johnson

\*\*\*

After reading the October issue's report on Windows XP (Windows XP preview Part 2) I

felt like I was reading a press release from Microsoft. I had hoped for a balanced report both good and bad. I know that XP will do all the [same] jobs as Windows Me, but I want to know what hidden surprises there are that probably can promise privacy (and) compatibility with other software.  
Russ Froelich/Bart

#### Where's the Java

I've seen that the Java tutorials that you've written for the Computer Page are no longer on their CanadaComputers.com site. Where else would they be shown, online? Thanks,  
Stanley Hager

TOP replies: The Java tutorials are still to be found in The Computer Page archive. Just click "Publications" on the black navigation bar at the top of the CanadaComputers.com home page, then on The Computer Page, the appropriate month, and you'll find the tutorials in the "Glosses and Tutorials" section.

We were also posting the series in the "How-to" section, but due to some scheduling problems, recent installments have not been posted there.

We have to correct this error, but in the interim, you can access them archived in the monthly issue archive.

We next new installment runs in the January 2002 TOP.

#### The continuing cost of inkjets

Would it be possible for TOP to do an article comparing different inkjet printer manufacturers and their ink prices?

I have an Epson Stylus 630 from 1997 and find that if I only print in black, a full-color ink cartridge slowly disappears. I find that one colour cartridge lasts for about two to three black cartridges even if I never use the colour. My guess for the colour cartridge is \$30.95 and black at \$17.95. Total is \$48.90 plus GST.

It seems with new bottom end printers that are the equal of what I'm using are selling for around the \$40. It's almost cheaper to keep buying new cheap printers than it is to keep paying through the nose for genuine ink cartridges.

I hear from friends that they are having the same beef that I have, even though they use different brand printers than mine.

It seems bad enough that equipment gets deliverably obsolete once every three years and Microsoft does the same with software every two to three years, but now even the printer.

TOP replies: Good suggestion. Your personal colour consumption bears investigation. Although manufacturers clamor us for it, we sometimes joke that inkjet printer maintenance is similar to disposable razors—use the printer (or the razor blade handle) very sparingly and make the real dough on the refills.

We have to admit that a modern inkjet printer is quite sophisticated, and to compare it to an inert lump of material that's fused into a razor handle is unfair. At the same time, we don't think any inkjet maker would deny that profits on inkjet cartridges are decent. ☐

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Also new from Hewlett-Packard ([www.hp.com](http://www.hp.com)) are three inkjets that allow digital camera users to print photographs without a PC.



The Photosmart 100 is a small (with a 20x11 cm footprint), lightweight (under 1.35 kg) unit that outputs 4x6 inch prints directly from removable media (including CompactFlash, SmartMedia, and Sony Memory Stick formats). Buttons on the printer's top panel allow users to scroll through the images contained on the memory card to select photos for printing. Users can select print size and print off an index sheet of all the photos saved on the memory card.

The printer can be used with a PC and HP's included photo imaging software, for enhancing and organizing photos before printing.



The Photosmart 110S and 111S printers also have memory card slots for printing images without using a PC. Both include CompactFlash and SmartMedia cards, and the 111S also has a Memory Stick slot. The printers have 2,400 dpi maximum resolution.

The control panel on the Photosmart 111S includes a 2.5-inch color LCD through which users can view and edit (crop, rotate, adjust brightness, and add borders and a date stamp) images. With the panel, users can also attach a message to an image and send it to a computer for emailing.

The Photosmart 100 has estimated retail price of \$299. The Photosmart 111S and 111S have estimated retail prices of \$199 and \$309, respectively.

—RFP Staff



The Canadian Encyclopedia ([thecanadianencyclopedia.com](http://thecanadianencyclopedia.com)) is now available free on the Web presented in both English and French. Among the recent features are the 100 greatest Canadians, the 100 greatest events in Canadian history, games, and quizzes.

—Newsbytes

## WHAT'S NEW

### Lexmark expands S400 all-in-one line



Lexmark Canada ([www.lexmark.ca](http://www.lexmark.ca)) has unveiled a multifunction (scan, copy, print, and fax) device based on its Inkjet print technology and geared to the needs of small and home office users.

The S40 has a maximum print resolution of 2,400x1,200 dots per inch (dpi), and a seven-processor drop size for smooth colour transitions. It has a maximum rated print speed of 14 pages per minute (ppm) black and seven ppm colour. The new peripheral accepts a range of print media,

including transparencies, labels, multiple envelope sizes, and heavy paper stock.

The S40 fuses both colour and black and white, and can store up to 80 pages in the fax memory. It scans up to 300x300 dpi (up to 9,400 dpi enhanced resolution) and has 36-bit colour scan depth. Its rated scan speed is 15 seconds per page black, and up to 27 seconds for a colour page.

As a photocopier, it can make up to four copies per minute (cpm) black and two in colour. Users can also make photos from 25 to 200 percent, and produce up to 99 copies from one original using the S40's interface.

It supports Windows 98, Me, 2000 and XP, and requires a PC with USB connectivity. The S40 comes with one black and one colour cartridge and a software bundle that includes optical character recognition and photo editing applications. The S40 has an estimated street price of \$139.

—RFP Staff

### NASA releases classic software online

WASHINGTON, D.C.—The U.S. space agency NASA, turned 43 in October and marked the occasion by releasing more than 280 of its scientific and engineering applications for public use. The modular Fortran programs can be modified, compiled and run on most Linux platforms.

The Robert C. Byrd National Technology Transfer Center in Washington, W.Va., and the Open Channel Foundation, a nonprofit unit of Open Channel Software Inc. in Chicago, are publishing the NASA Classics collection ([www.conchannelsoftware.com](http://www.conchannelsoftware.com)).

The Byrd center already distributes more than 500 programs created by NASA developers, said the center's president, Joseph Allen. Open Channel Software now has access to these programs and "will help NASA promote open-source software for the public benefit," Allen said.

The classic programs, tested and debugged over the past 30 years, serve a variety of purposes, such as chronology, flow analysis, decision-making, and modeling. The Open Channel site also offers open source software for Internet browsing, e-commerce and email systems.

—Newsbytes

Hewlett-Packard ([www.hp.com](http://www.hp.com)) has added



three new cameras to its PhotoSmart lineup, the 715, 815, and 775.

The first two feature 2.31 megapixel



resolution, 2X digital zoom lenses, and 3 1/4-inch LCDs. The 815 adds a 28 optical zoom. Both models include automatic exposure control, red-eye reduction,



zoom, auto flash, and power-status display.

The 715 has 3.1 megapixel resolution with 38 optical zoom and 4.6-mm lens, which allows for more light, and is designed for optional accessories. It ships with a 36-MB CF memory card.

The 715 and 815 have estimated retail prices of \$299 and \$499, respectively. The 775 has an estimated price of \$299.

—RFP Staff

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# IBM refreshes product lines

## Introduces ImageUltra for management

By David Tomko

If you remember MAX and EXTRA, you've got a handle on IBM's refreshed NetVista desktop and ThinkPad notebook lineups.

Equally significant, if not more so, is a PC management system called ImageUltra that IBM Canada also announced during a briefing in Toronto in early October to showcase the new lineups.

ImageUltra is aimed at IT departments and its main goal is to improve the efficiency of updating operating systems, drivers, and applications across a company's base of PCs.

### New NetVista options

IBM has categorized its NetVista desktop offerings according to three-letter designations: M, A, and X. The M and A series represent the premium and budget lines respectively. Only Pentium 4 processors (and the Intel 845 chipset) will be used on the M series.

The current line includes 1.4 GHz, 1.8 GHz, and 2 GHz versions of the processor. The M series will support up to 1.5 GB of RAM. An embedded security (cryptoprocessor) chip will be available on some models in this series.

The A series will use either Pentium III (3 GHz) or Celeron (900 MHz or 1.1 GHz) processors and an Intel 810E2 chipset.

As well, there are other differences in components, operating system options (Windows Me is available on the A series, but not on the M series) and warranty (three-year onsite for M series, one-year onsite and second- and third-year parts exchange only for A series). The embedded security chip

the small footprint that made it a design hit when it debuted. There is no PC "look" since the motherboard and other components are located in a small enclosure that sits behind the flat-panel screen.

The X series now uses Pentium 4 processors, and 15-inch or 17-inch flat-panel screens are available.

### ThinkPad

The biggest news in the ThinkPad lineup is the introduction of the X series, which has been replaced with a new, X ecosystem line.



ThinkPad

The X series started out as a consumer model, and was not well integrated with the other ThinkPads, which were designed to share components such as removable drives, extra batteries, etc. through a common Ultrabay device bay.

The R series—which has about the same dimensions as the T series but is 400 g (1 lb.) heavier (for a total of just under 2.7 kg, or 6 lb.)—can share common components with other ThinkPads. The ThinkPad A, T, and X series have undergone major updates.

Two interesting ones are integrated AC11 and Bluetooth antennas and built-in security chips (cryptoprocessors) on some models.

### NetVista

The company also announced a line of Ultrabay Plus devices (just compatible with ThinkPads having the original Ultrabay) including a slide-

out screen keypad and docking bay for Palm/WorkPad handhelds.

### Improving IT's image

As Peter Storey, IBM Canada's NetVista national sales manager, noted in his presentation, keeping track of the IT needs of even a small enterprise can be a night mare because of the diversity of hardware, operating systems, drivers, and work-specific applications. IBM's solution is ImageUltra, which goes one better than the major software image load

method typically used to update computers on a mass.

Storey said the image load method is that it doesn't take individual variations (such as hardware age or specific applications needed by some workers) into account.

ImageUltra, on the other hand, creates a master software image load method in that it doesn't take individual variations (such as hardware age or specific applications needed by some workers) into account.

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**COMPAQ**  
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# Have yourself a multimedia Christmas

Audio and video toys for the whole family

By Sean Carruthers

Keyboards and blank CD-Rs are great presents, but when people really want the fun, they come to computers. A lot of people just can't get enough of that old adage: *There are a few audio and video toys for kids and adults alike.*

## Audio

### Intel Personal Audio Player 3000

From Intel Corporation  
www.intel.com  
Estimated price: \$100



An update to Intel's earlier entry into the world of MP3, the Personal Audio Player is a slightly scaled-back and more affordable edition.

The player sports 64 MB of onboard memory, and there's a slot under the battery door for an optional Multimedia Card (MMC)—which is good for an additional 64 MB. The player runs on a single AA battery (included) and connects to your PC via USB.

To make the player more personal, as per its name, the front panel comes off, allowing you to put in your own specially designed motif. You can design your own with the included software, or one of the five included in the box. A set of ear-bud headphones is included, and the player has a belt clip. It can handle both MP3 and WMA files. To get you started, some tracks are included, the first of which use an internal on how to use the device. The player is compatible with Windows 98, ME, 2000, and XP.

### Rio Volo SP250

From SONY  
www.sony.com  
Estimated price: \$150

The new wave of MP3 audio devices features many CD-based models, which makes sense—CDs are familiar to those who love music, and portable CD players

have been widely adopted.

The Rio Volo SP250 is the newest player on the popular Rio line, and is designed to play both standard audio CDs and specially burned MP3 CDs, which can hold 10 to 20 hours of CD-quality audio.

The Volo SP250 handles both MP3 and WMA files, and supports folders, so you can keep your albums separated. It also multi-angle rotates its built-in shock protection, and also has a built-in FM radio for those tragic times when you come to the end of the CD.

The Volo SP250 is powered by two AA batteries, and comes with two NADPH rechargeables, which are topped up when you connect the player to the included AC adapter. If you don't have a pocket suitable for carrying the player around, the package also features a glove-style case that protects the player and features a belt-clip mount and a detachable shoulder strap.

A large LCD window makes it easy to see what track is playing, adjust the EQ, or search for music. The player comes with a basic clip-on remote, but for USB, you can get a remote with an LCD window of your own, you'll have to have a CD burner as well if you want to create your own MP3 discs. One of the nice bonus features the SP250 comes with two different sets

of headphones: one head-style and the other with a folding headband.

### Samsung Baby YEP! (YP-20)



From Samsung Electronics  
www.samsung.com  
Estimated price: \$75

If you want an MP3 player but, understandably, is more important to you than a large display and a bunch of extra features, the Baby YEP! offers a most basic alternative. Small enough to tuck in the palm of your hand, the 31 g Baby YEP! comes with 32 MB of onboard memory, and a USB port for transferring files.

The headphones that come with the player double as a neck strap, allowing you to hang the player itself like a pendant from your neck. The player is com-

patible with Windows 98, ME, and 2000, as well as Mac OS 8.6 through 9.0.4. It runs on a single AA battery. A 32 MB version of the Baby YEP! will also be available, but the pricing hasn't been finalized yet. Expect it to be around \$100 or less.

### Telus Mobility/Samsung Upstar

From Telus Mobility  
www.telusmobility.com  
Estimated price: \$100

It's a given that the MP3 revolution has been a success, because digital audio is turning up everywhere—this time in your favorite neighborhood cellular phone.

The Upstar is a compact dual-mode cellular phone (both 1.9 GHz and 800 MHz bands) with all the features you'll expect of a



Continued on page 18

## Apple's iPod a solid MP3 player

By Justin Sizemore



After totaling a cryptic combination to the press—followed by a week in which the name and concept of said thing—Apple unveiled its “revolutionary” new Mac device: an MP3 player called the iPod ([www.apple.com/ipod](http://www.apple.com/ipod)). It is revolutionary. Let's take a look.

One of the most important elements of any MP3 player is storage, and the iPod has a 5 GB drive that holds approximately 1,000 songs. In order to store that amount, though, the iPod uses a small hard drive instead of flash RAM. This means it needs more power and has a possibility of sleep-pong.

It does have a 32 MB RAM buffer that translates into about 20 minutes of sleep protection. It's powered by a built-in lithium polymer battery—the same type that was in its new iBook. In the iPod, the bat-

tery is rated for 10 hours of playback and needs three hours to fully recharge (it recharges 80 percent in one hour).

The iPod's most unique feature, however, is the way it connects. Using the FireWire standard Apple helped create, 5 GB of audio



files can be transferred from a Mac to the iPod in five to 30 minutes—during which time, the battery is recharging.

The iPod interfaces with Apple's iTunes 2.0 software (included with the iPod and available online for free), so music and playlists can be synchronized between an iPod and Mac, every time it's plugged in.

The last great feature of the iPod is its

case, which is small, simple, and elegant. From the front, the iPod has a minimalist white face with a large scroll wheel, five buttons, and a jog dial. Functions can be searched by artist, title, or playlist, and the jog dial controls how quickly you navigate through the library. This simple interface seems to solve the navigation problems common to many MP3 players.

This is a basic MP3 player that can store 1,000 songs, run for 10 hours, and sync with your Mac, all in a package slightly smaller than a Palm handheld or a deck of cards. But is it revolutionary? Hardly, but it is a well designed product that does one thing and does it well. The iPod comes with a 2 in FireWire cable, AC adapter, earbud-type headphones, and an iTunes 2.0 CD.

There is one downside to the iPod: the price. At US\$149 (Canadian pricing was not available at press time), it won't be in everyone's stocking. The iPod will be available Nov. 10. □



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Panel Size	Resolution	Features
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V6150	15.0"	1600x1200
V6170	15.0"	1600x1200

Panel Size	Resolution	Features
V6100	14.6"	1600x1200
V6150	15.0"	1600x1200
V6170	15.0"	1600x1200

Panel Size	Resolution	Features
V6100	14.6"	1600x1200
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Panel Size	Resolution	Features
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V6150	16.1"	1600x1200
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Panel Size	Resolution	Features
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Panel Size	Resolution	Features
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V6150	18.5"	1600x1200
V6170	18.5"	1600x1200

Panel Size	Resolution	Features
V6100	18.5"	1600x1200
V6150	18.5"	1600x1200
V6170	18.5"	1600x1200

Panel Size	Resolution	Features
V6100	18.5"	1600x1200
V6150	18.5"	1600x1200
V6170	18.5"	1600x1200

Panel Size	Resolution	Features
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# Have yourself a multimedia Christmas

Continued from page 26  
modern cell phone, including voice memo, dialer and wireless Internet capability; voice dialing, and a hands-free headset.

Additionally, it features a built-in MP3 player with 64 MB of internal memory for up to an hour of MP3 audio.

The controls for the player are on a clip-on remote that sits between the phone and the headphones and has a big

button for quickly switching between MP3 and telephone modes when calls come in. It's powered by a rechargeable lithium-ion battery that is rated for up to three hours of talk time or 15 hours of MP3 playback.

## Video

### ATI DV Wonder

From ATI Technologies Inc.

www.ati.com

Estimated price: \$75

If you want to start dabbling in digital video but don't have the hardware on your PC, ATI offers the DV Wonder. Essentially a three-port FireWire card, compatible with all FireWire drives, the DV Wonder comes with iData Systems' VideoStudio 3.0 for DV capturing and editing. It also comes with a DV cable for hooking up your camera. While there's not a huge wow factor here, it's a very solid solution at a very good price.

### Canon Vixia Camera

From Canon Computer Co. Ltd.

www.usa.canon.com

Estimated price: \$200

For the latest in spy class, check out Canon's Vixia Camera. At first glance, it resembles a walking, more than a slightly camera wrist watch, but the top of the watch has a tiny lens capable of capturing

black and white photos at a resolution of 120x120 pixels.

The watch itself will hold up to 100 still pictures, and when you're ready to transfer them to your PC, you use the infrared sensor and the infrared PC Link Kit, which connects to your PC via serial cable, and is compatible with Windows 95, 98, and NT 4.0.

While the pictures are a bit grainy, the camera wasn't designed for ultra-professional quality anyway, it's designed for a bit of fun, or for taking a quick snapshot of something to help you remember a face, an interaction, or what have you.

### Intel Digital Movie Creator

From Intel Corp.

www.intel.com

Estimated price: \$400

Last year, Intel introduced the Sound Maximizer, a portable device that recorded digital audio, allowing you to record it and send it once you got it back to your PC. This year, the Digital Movie Creator goes one better, adding full motion video to the mix.

Though it looks a little like a credit pro-

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Best DVD movie soundtracks are encoded with DTS or Dolby Digital audio formats, providing six channels of discrete audio playback. The Yamaha TSS-1's state-of-the-art LSI technology provides a compact, affordable way to enjoy DTS, Dolby Digital and Dolby ProLogic. This specially engineered sound system brings home the same audio experience found in feature films viewed in quality theatres around the world.

The Yamaha TSS-1 easily connects to PCs equipped with DVD-ROMs, gaming consoles (i.e. PlayStation™2, set-top boxes (i.e. Bell ExpressVu™) and stand-alone DVD players using either of its digital connectors (Coaxial or TosLink).

In addition, the TSS-1 offers Direct Cinema, an ideal way to listen in private. This technology routes output to the powered speakers, while simulating surround sound through headphones.

**Listen to the TSS-1 — for affordable, top-technology sound features like this:**

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The TSS-1 offers active system components with a light, easy-to-use menu and that has surround for 2 digital (optical and coaxial) and 1 analog inputs. That makes it simple to connect various components to enjoy different sound sources.

System includes an optical cable for connecting to a PlayStation 2™ or a DVD player.

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## Kryptonite protects your notebook



**Quick-Mount Cable Lock**  
From Kryptonite Corp.  
[www.kryptonitecorp.com](http://www.kryptonitecorp.com)  
Price: \$45 (not estimated for U.S.)

even and 1-mil cable)

If you're cynical, you've probably heard of Kryptonite, the company that makes the

black U-shaped lock that defeated bike thieves and won a huge following. Now, Kryptonite Corp. has developed a line of devices to help prevent your notebook

computer from being ripped off. The Quick-Mount cable locks computer 1.8 in. (4.6 cm) of either 5 mm or 8 mm diameter braided steel cable, sheathed in an anti-vandal

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locking, with a catch loop at one end and the lock hardware at the other.

The Quick-Mount name describes the unusual design of the two-part locking system. A small stud is inserted into the lock body and separates when the lock is opened. Meanwhile, the lock body stays attached to the cable by a screw-on nut.

The stud has a screw-down clamp that attaches it firmly to the computer security disc. It protrudes 12 mm (0.5 inch) from the notebook's computer, and is designed to be left permanently attached. When unlocked, the two parts easily separate, making it simple to separate the computer and the cable.

The Kryptonite cable locks are available with auto-pick locks (master keys), or four-digit combination locks. In Canada they are being marketed by Follows.

—Doreen Tomasko

### Toshiba notebooks get Bluetooth

Shoun Wive ([www.shounwive.net](http://www.shounwive.net)) has announced that Toshiba ([www.toshiba.com](http://www.toshiba.com)) is integrating its Bluetooth modules in its new Tecra and Portege notebooks.

The Bluetooth 1.1-qualified radio modem and hardware processor will give the Tecra 6000 and Portege 4000 series notebooks native support for Bluetooth wireless technology.

Typical Bluetooth applications include Internet access via mobile phones, as well as wireless file sharing, data transfer and synchronization among PCs, peripherals, and PDA's.

The suggested list prices for the Bluetooth-enabled notebooks start at \$4,449 for the Tecra 6000 and \$3,999 for the Portege 4000 series. The Bluetooth module is an optional internal add-on, with pricing unavailable at press time.

—TIP Staff

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## Scan card, build contact database



By David Taraku

The CardScan Executive,

the latest addition to Canon's line of business card scanners, is a good gift for the business person who collects a lot of

cards. The hardware portion is the CardScan 606c, which offers colour scanning and USB connectivity.

**CardScan Executive**

From: Canon  
www.canon.ca/scanner  
Price: \$249

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cards. The software, run at Version 6, includes utilities for scanner control, optical character recognition (OCR), and synchronization with contact management software and hardware, along with the main contact management application.

Why would you want a colour scanner just to extract contact information from a business card?

The answer becomes evident when you start using the contact manager, which is designed to look like a business-type rotary card holder.

During the scanning, the text information is OCR'd and placed into the appropriate fields.

A bitmap image of the card is also saved, and the card image, along with the extracted text information, are presented together onscreen.

You see the contact as a listing in the database, along with the image of the actual business card—in full colour, if you wish.

As you move from field to field, the portion of the card that the information read from is centred in the image window—very helpful for proofing.

How well does it work? We used 30 business cards for our test database. The main operation of scanning, OCR, and verification of data took about 40 minutes.

The manual scanning and OCR for the 30 cards was completed in about eight minutes, and the balance was spent checking the information.

Of the group, 13 cards needed OCR correction, and only 30 were entirely error-free.

That might sound like a high error rate, but most were minor. A common source of OCR error was postal codes—for example mistaking the numeral 1 for the lower case letter l, or the letter 8 for the numeral 5.

OCR for all-number fields was very



good, and very few errors occurred with photos or fax numbers.

However, there were still a couple of mistakes with email addresses, and only one instance where the @ symbol was not correctly read. While this was impressive was the accuracy with which the software placed information in correct fields, regardless of where or in what order it appeared on the card.

The balance of the errors resulted from the software trying to decode logic on alphanumeric characters, mistakes in character spacing, or placing digits or other text you wouldn't normally find on a business card in the wrong field.

As might be expected, the lowest errors were made on white or light-colored cards with plain dark lettering.

Two cards were laid out in a full or partial orientation, but did not pose any problems.

The worst case was a card that was made of textured stock covered entirely with grey and green ink, with the text revealed only in white.

The software was able to fill just one field of the contact, and that was a picture of random characters.

Reversed text (white letters on a dark background) or dark ink that was not accurately OCR'd on the front cards that used that design.



A limitation of the CorScan database is that it is just a contacts manager.

Many people will assume that and use personal information management hardware or software to store their appointments, schedules, tasks, etc.

Formerly CorScan will synchronize with software such as Notes, Outlook, Act!, and Outlook, and hardware like PalmPilot, Palm, and PocketPC devices.

One feature we did not see in a CorScan Net, which allows users to access their contact databases in a secure Web site, giving them access to their contacts through a browser. □

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## IBM THINKPAD 600

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PCI FDD

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## IBM THINKPAD 600E

PENTIUM II 400MHz

128MB SDRAM

PCI FDD

ATX 330MHz

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128MB SDRAM

PCI FDD

ATX 330MHz

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# Gifts to enhance mobile computing

## For the notebook computer user that has everything—or nothing

By Geoff Wheeler

Whether you're shopping for a notebook computer user or you're a notebook computer owner who is making a wish list and checking it twice, we have some gift ideas for you. Before looking at these specific ideas, however, it is worth noting a few tips on buying gear for your notebook.

- **Keep battery life in mind.** You probably chose a notebook PC because you wanted to be able to work untethered once in a while. So, battery options are important; don't skimp for devices that drain power very quickly. Most PC Cards and many USB devices, for example, draw power directly from your notebook. As a result, they can be a real drain on battery life.
- **Think about use and weight.** Don't take away from the notebook portability by adding too much weight.

With these tips in mind, here are a few goodies you may want to put on your list.

- **Compatibility.** Make sure your PC has the ports (e.g., USB) and horsepower required by the items you ask for.

With these tips in mind, here are a few goodies you may want to put on your list.

### The lack of activity



If you want to add lots of different goodies to your notebook, chances are you'll need more than one or two USB ports. And that's OK, because it's easy to add ports with a USB hub. They are relatively small and can be used with or without external power, depending on the device you'll be plugging into them. For one portability, however, things have a long model (literally the power supply is bigger than the hub itself) designed for notebook users. KeySpan also has small model (shown) that adds four ports. Prices start at around \$30.

### Continuous power

A big issue for many notebook users is battery life. Although today's notebooks run far longer between charges, you can never go too long by finding ways to extend your portable computer's battery life.

The simplest way to take life for your notebook computer business for Christmas. Depending on whether the battery is new or nonfunctional, it will

cost between \$100 and \$400. There isn't likely to be a great deal of choice, however, as notebook batteries are extremely proprietary—they need to be built for use in a single notebook model and can't be swapped with another.

Another power-related add-on that might be worth adding to your Christmas list is a power monitor. This brick-shaped device plugs into the cigarette lighter socket in your car and converts 12 volts DC to 110 volts AC, allowing you to power any appropriately rated 110-volt device.

This is a far better buy than the single cigarette lighter adapter, if you plan to use your notebook on the car. Inverters, which are typically priced at between \$75 and \$180, allow you to plug in other devices (digital cameras, handheld computers, mobile phones, and even low-power printers) when you are on the move. Buy one of these and you won't need to buy separate cigarette lighter adapters for each device.

Continued on page 28



more than just monitors.

All prices are already MSRP. We make no warranty, express or implied, regarding the accuracy of the information provided. Monitor Depot is not responsible for typographical errors.



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# The mouse before Christmas

## A quick guide to online shopping in Canada

By Jeff Evans

Looking forward to spending half of December tramping through crowded shopping malls, searching for the perfect gift for the kids? **Mouse!** No! Then how about the online alternative?

Can you shop from the comfort and privacy of your home and save time, money, hassle and gasoline by using the Internet for your holiday gift-giving? Online alternatives to traditional bricks-and-mortar stores abound. Here's how to use them to make the annual December buying binge less stressful.

### Who's shopping online in Canada?

In December 2005, more than 6.3 million Canadians visited online shopping sites, according to figures compiled by Internet research firm Media Matrix ([www-mm.com](http://www-mm.com)). Predictions say that figure, which would top eight million unique vis-



its by Canadian online shoppers. The Web has become an essential fea-

ture of shopping in Canada, but the nature of actual purchases is still modest.

"From the hype, you'd think it is the best known but the stats don't bear that out," says Randy Scotland, of the Retail Council of Canada ([www.rccouncil.ca](http://www.rccouncil.ca)), about online buying in Canada, the percentage of final retail sales done online is only about one percent of all retail sales.

However, Scotland cautions, "some retailers in certain sectors, such as music, report 10 percent or more of some sale prices of products being sold online." Scotland also points out that, from a day-to-day view, online sales continue to grow rapidly.

As well, says Scotland, most Canadian consumers use retail Web sites as "researchers," to make price comparisons and gather product information. More often than not, says Scotland, a visit to a Web site eventually leads to a sale at a traditional bricks-and-mortar store.

Unlike the eternally optimistic Americans who seem to have been conditioned by their love affair with mail order catalogue shopping, in script online

Continued on page 33

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- 4 USB ports
- Supports Low 800MHz / 1.0 GHz
- Supports Ultra ATA 100



Supports AMD® Duron™ / Athlon™ / Slot™ A



Control your personal distribution







# The weeds before Christmas

Continued from page 33  
it costs generally.

As far as privacy goes, Canadian retailers have to abide by Canadian Internet privacy laws that restrict the type of personal information they can collect and

how they can use it. Read the privacy policies of sites you visit, and don't agree to give information or allow it to be used for marketing purposes.

## Tips for smart shopping online

1. Use the Internet for what it is good at.

It's the world's most productive technology for finding information, and it's very useful as a shopping aid. It can't deliver a physical object to you, but it can help you find almost any product or service, and quickly compare prices and payment and delivery options.

2. Use a Web search engine, such as Google. If you want to find a Hudson's Bay blanket, for example, type in a search query "Hudson's Bay blanket" and links will appear to online catalogs of Hudson's Bay print blankets, catalogues that sell the blankets, and a link to the HBC.ca Website.

3. Use online shopping tools at Web portals, such as Yahoo! Canada (omni.yahoo.ca), for quickly browsing through different categories of retail goods. According to Yahoo! Canada's Director, the number of users participating in this portal's retail section has more than doubled in the last year.

4. When you find a store you like, use its in-year browser's list of featured items, so you can find it again quickly.

5. Buy it on the Web if it makes sense. Computers, books, DVDs, CDs, videotape, software, packaged foods, travel, hotel accommodation, flowers, greeting cards, and other small gifts are items well suited to online ordering.

6. Order early if you are going to rely on a Web retailer to deliver the purchase; check that the item is in stock, how long delivery will take, and the cost of the different early or courier delivery options. In 2000, online sales in the U.S. slumped significantly in the last two weeks of December. According to Scotland, this was a reaction to consumer experiences in 1999, when thousands of purchases were delayed too late for the holidays because retailers were not prepared for the demand. According to Scotland, "only two years' experience under their belts, most online retailers are ready this year."

7. Go to a store if it makes more sense—especially if it's last minute. You may want to do your shopping and print comparisons online, use the Web site or a phone call to locate a retailer that has the item, then go there and purchase it. This "clicks-and-mortar" approach—a hybrid of Web and traditional retail—can help you take advantage of both the old and new styles of retailing. □



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## Nobel Prize winners

18—This one highlights winners of this year's Nobel Prize, as well as the many others who over the years have received the prize for literature, physics, economics, medicine, peace, and chemistry. This virtual museum of the world's most prestigious award winners is the creation of the Nobel Museum itself. See 100 years of scientific and literary thought as presented in interactive and no exhibits.

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## Gifts for the palm-top generation

By Carol M. Wheeler

**A**t last you've got a handheld computer. It's small enough to fit in the pocket of your coat, lets you check your appointments, play some games and even synchronize with the email and address book you have on your desktop computer. You consider

Well, actually you could. And Christmas is not too far off, so it's a good time to be doing the asking. After the first few weeks of working with your hand held, you probably realized there are lots of little extras that would be really nice to have.

These goodies can include everything from a stylish leather case (usually capable of doubling as a wallet, too) to a wireless communications add-on that provides you with instant, go-anywhere email and Web browsing. Here are a few eye-catching nominees for your handheld consumer Christmas wish list.

### Keywords

If you had previously been using a handheld computer that had a built-in keyboard (as this writer does), you may find yourself a little weird using a Palm or Pocket PC-based handheld that only allows you to enter information and commands with a stylus.

All of that changed recently, however, when *Think Outside the Box*, *Go-Tags*, *Followers*,



Targets, and others began offering folding keyboards for use with palm-sized computers. These devices, which usually cost around \$150, actually go quite a long way to changing the experience of using a palm-sized computer.

They reason that when you really need a keyboard (for taking extensive notes at a meeting, for example), you have that option. And, when filled up, these keyboards are usually as small as the palm-sized computer itself.

## Shenoy



With handheld computers now being capable of playing video clips, MP3 music files, as well as storing e-books, PowerPoint presentations, and hyperlinked archives, there is more reason than

ever flat extra storage.

Until the release of its latest devices, Palm offered no removable media storage options in its handheld lineup. The new models—M125, M505 and M505s—support Secure Digital (SD) and MultiMedia Card (MMC) format cards. Pocket PC devices typically use Type I or Type II CompactFlash (CF) cards, though newer Windows CE-based devices were equipped with PC Card slots. Hewlett-Packard's Palm OS-based Vxior line, with its versatile Springloaded expansion port, will accept different memory card formats dependent on the adapter.

You'll also need to consider what you will be using the memory for. There would be little point, for example, in buying a CF card that stores four hours of MP3 music if your handheld's battery can only run the MP3 software for a half hour. Solid state memory is still quite expensive, running at \$1 to \$142 per megabyte depending on the capacity of

## 840



If you intend to make your handheld the only mobile digital device you carry, you may want to add a device that will allow it to play MP3 music. Many newer handhelds (most Pocket PC-based devices) include the function "out of the box," so you'll need an add-on. But those are plenty of Handspring Visor users who will, and they will typically pay \$100 to \$400 for the fun. The MP3 player add-ons include the Good Technologies SoundGood AudioPlayer (which stores about 64 MB of audio, around 20 songs) or the InnoGear Minislim MP3 Player (which has room for an extra 328 MB).



Target Smart Response add-on

with Power's Series 300 and easy Pocket PC devices, once again, Handspring's Visual Basic users will need to buy a separate module to get this capability. It will come in the form of a digital voice recorder module from companies—such as LandPhone Systems and Targus—and it will cost around \$100.

Global Packaging Systems division

A potentially useful extra gives your handheld Global Positioning System (GPS) capabilities. Brackley's GPS module

Continued on page 58

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CD-ROM



#### Apple wish list

Continued from page 38  
free RAM. It's excellent for entry-level digital photo editing, and can even be used to create slideshows and Web page galleries.

#### Audio 2

**Four Plus**  
[www.pmc.com/plus/](http://www.pmc.com/plus/)  
Price: US\$250 (0-shipping)  
Even though Apple gives iMac users free fire, there are those of us who make sense of the features of SoundRiser—the power source to iMacs. For those who want an MP3 player with a storable external interface, audio and video plug-ins, and a built-in equalizer. And this is the software for you. It works on classic Mac OS as well as X, and supports the same features as iMac, including ripping, burning, and playback. Some of the optional interface there are wild, and the equalizer is a match made for heaven that iMacs still doesn't have. There is a 30-day demo available, if you want to try first and pay later.

#### QuickTime Pro 3

**Four Plus**  
[www.apple.com/quicktime/](http://www.apple.com/quicktime/)  
Price: US\$299 (0-shipping)  
If you use QuickTime, you've seen the browsers that pop up from time to time asking you to upgrade to the Pro version for US\$30. If you've ever wondered what you get with QuickTime Pro, here's a run-down. The ability to save movies from the Internet, edit audio and video using cut, copy and paste, import movie file formats than the free version, and you can make changes to QuickTime files, then export them in a variety of formats. It also allows you to move your movies in a special full screen mode, in which it blacks out the rest of the monitor, and presents the movie in the largest size possible.

#### Leather PowerBook Screen Protector

From J.R. Hill  
<http://www.jrhill.com/pages/computer.htm>

Price: US\$750 (0-shipping)  
All PowerBooks since the G4 Macbook Keyboard have had an issue with the key board touching the screen when the PowerBook is closed. Over time this results in dirt and the appearance of scratches on the screen, which are not only a pain to clean but can be permanent. US maker of leather goods J.R. Hill and Co. has come up with its innovative solution to this problem, a full grain leather pad that you lay on the keyboard when the computer is closed. This prevents damage and looks quite perfect for those who take their PowerBooks with them everywhere. The only downside is we don't know of a Canadian distributor for this product. However, the J.R. Hill Web site does ship to Canada. Makes a perfect, unique gift for the laptop owner in your life.

#### Mac OS X: The Missing Manual

From O'Reilly  
[www.oreilly.com](http://www.oreilly.com)  
Estimated retail price: \$40.00



Author David Pogue has been writing Mac books for many years and his rising interest series are among the best Mac training books available. We reviewed *Mac OS 9: The Missing Manual* and found it invaluable for new users. *Mac OS X: The Missing Manual* should be released by the time this issue of TCP hits the streets. We haven't taken a look at it yet, but the history of this series tells us that it should be

a great resource for new users and for long-time Mac heads making the jump to OS X. As with most computer books, the release date might slip, but expect it in bookstores in time for Christmas.

#### Under \$500

**RAM, lots of it**  
From Various sources including following sites:  
[www.memory.com](http://www.memory.com), [www.dram.com](http://www.dram.com)  
Estimated price: \$30-250

RAM prices used to be up and down every five minutes, much like the stock market, but in the past year they have been going down without the aid. It used to be that you bought the minimum because it was just too expensive. At today's prices though, we suggest buying more amounts of RAM and just trust that you will need it someday.

For example, OS X requires 128 MB of RAM as a minimum, and people at Apple have admitted that 256 MB is really much more realistic for a usable system. We've found that the OS gets faster as you add RAM and peaks somewhere around 384 MB. We would recommend buying 256 MB or 512 MB as prices have never been so low. As we write this, 256 MB is US\$18 and 512 MB is US\$41. Kinda makes you wonder why Apple only gave you a measly 128 MB with your new iMac doesn't it?

#### Cordless optical mice

From Logitech and Microsoft  
[www.logitech.com](http://www.logitech.com), [www.microsoft.com](http://www.microsoft.com)  
Estimated price: \$60-100



Last year, optical mice were the last desktop peripheral. This year, cordless optical mice are the new thing, and there are two very good Mac options. Logitech makes the Cordless MouseMan Optical, and Microsoft has just released the Wireless IntelliMouse Explorer. Both make feature optical technology for excellent accuracy, and a five-button design with scroll wheel. The range on either mouse is 1.8 m (6 ft.) and you can position the mouse anywhere you like.

#### Linksys Cable/DSL Router

From Linksys  
[www.linksys.com](http://www.linksys.com)  
Estimated retail price: \$150-\$250



Now that more of us are accessing the Net via high-speed services, we are learning the wisdom of not having to dial up to check our email. At the same time, being connected all the time gives hackers a lot more opportunity to look into our computers. The solution to this is a device called a router. It sits between your Internet connection and your Mac and filters all the traffic coming in and out. This means that from the outside nobody can see your computer; they see only a router. A side benefit of such a device is that your ISP sees only one device, so you can have as many computers as you want online and pay for just one connection. The Linksys box is a good choice because it can be configured for Mac, PC, or Linux systems using a simple Web interface.

#### Temp Hawk Pro Skater 2

From Apogee  
[www.apogee.com](http://www.apogee.com)  
Estimated retail price: \$70 Range

Continued on page 47

# PRINTERS

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**Apple with hot**

Continued from page 41 of users of the people who use it. Many use it by companies like Electronic Arts, Industrial Light and Magic, and Skywalker.



Many iterations have been used in movies like *The Perfect Storm* and *Star Wars Episode One*. If you want to get into 3D on the Mac and make a career out of it, Maya is the way to go.

**A trip to Macworld San Francisco 2002**

Estimated price: \$1,000 to a lot more

For the ultimate experience, you really need to be at Macworld in San Francisco on Jan. 7. Just walking on the show floor

surrounded by thousands of exciting new products is amazing. However, nothing compares to seeing Apple chairman Steve Jobs as he gives the keynote address.

When you see the presence of Steve, the reality distortion field is so powerful that you start to have the strangest thoughts. Like how great the world will be when you make

your award-winning short film on your dual-processor PowerMac G5, and then burn it to a DVD that you can play on your OS X-compatible wearable handheld.



Steve Jobs gives the keynote at Macworld 2002.

Of course, once the keynote is over, you realize you're not in the position to buy \$10,000 worth of Apple hardware and even if you could, what would you really do with it? But every Mac user dreams to spend those two hours in the presence of Steve.

Of course it won't be cheap to get there, either from Canada (can range from \$300 to \$1,200 depending on where you get your tickets, and then there's the show tickets to consider). The cheapest Expo package that includes a ticket to the keynote is the MacWorld/Univis Conference package for US\$1,199. However, if you want an all-access pass to the Expo, you need the Platinum Pass, which will set you back US\$1,399. That's of course

you're got food and lodging and pretty soon you're out several thousand dollars. Or like this columnist, you could drive down, sleep in your car, and eat nothing but Power Bars.

It's not great as much money, but it's not nearly as glamorous. ☐

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500 MHz

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- 10 GB Hard Drive
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- 56K PC Modem
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- Windows 95/98 and mouse
- Microsoft Windows 95 (Std CD)
- 17" Monitor

1 GHz

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- Amplified Speakers
- Integrated 3D Sound
- Windows 95/98 and mouse
- Microsoft Windows 95 (Std CD)
- Canon BIC2130C color printer
- 17" Monitor

1 GHz

Upgrade Package 1

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So this is what the facts are about. Intel has been threatening lawsuits against VIA, the maker of the chipset that allows Intel's Pentium 4 processor to be teamed up with DDR SDRAM, as well as manufacturers who use the chipset on their motherboards.

Officially, Intel takes issue with the board because it feels Via's chipset violates its own patents. The other thing Intel may be worried about is the performance of the chipset when teamed up with the Pentium 4 and DDR SDRAM. Quite bluntly, it weakens the rest of the competi-

tors in November 2001—that this Shuttle board posted a 12-point lead on the next-higher competitor in this month's test.

To add to the joy, the board also comes with two RAID connectors and spots to plug in four additional USB ports (brackets included). It might have been nice to

see CNR or FireWire onboard, but in it stead, the 4040E is geared up to provide excellent performance and a lot of room to expand your storage.

If you're interested, you might want to act quickly. If Intel flexes its muscles, the board may not be available for long. □

#### Absolute asset tracking service details



San Francisco-based Absolute Software ([www.absolute.com](http://www.absolute.com)) has launched a secure asset tracking and inventory management service called AbsoluteTrack.

The service uses Absolute's Computer platform, and is targeted at small- to medium-sized businesses that need to track their remote, mobile, and desktop PC assets, as well as manage inventory daily. For larger companies that have an asset management system, AbsoluteTrack provides an inventory module that can track remote and mobile computers.

According to the company, AbsoluteTrack helps IT staff manage software licenses, computer loans, machine configurations, PC retirement, hardware and software upgrades, and device ownership. The service alerts administrators of events—when a system lease is due or components have been added to it, for example.

In addition, Absolute says, the new service can help prevent computer loss and monitor security policy violations.

The Computer platform used in the service is comprised of software installed on PC hard drives that sends notifications to the Absolute monitoring centre when the computer is online. The user is not aware that the PC's IP address, phone number, and other data points are being transmitted. This allows administrators to collect asset data and companies to track stolen hardware.

—TTP Staff



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# Negotiating the perils of upgrading

By Sam Corbitt

just how efficiently your system will run that application.

To hear the optimists talk, upgrading is the easiest thing in the world, but those who have actually cranked open the case and tried to replace a component have often found an obstacle course awaiting them. That is especially true with motherboards, for a number of reasons:

1. Different processors often require different sockets. An Intel processor will use a different socket than an AMD processor. A high-end processor may use a different socket than a value-oriented processor. To make things even more confusing, the same processor may change sockets during its lifetime for other reasons, like a newer form factor, or an upgraded design. In short, modern motherboards are almost always processor-specific, which means you're in for a cornucopia of frustration when selecting one to go with a specific processor and vice versa.

2. Different motherboards have different chipsets. Each motherboard has a "chipset" to allow all of the components—CPU, memory, PCI slots, onboard controllers, etc.—to communicate with each other. Different motherboards are used as different segments of the computer world, and sometimes the same processor can be tweaked up with different chipsets depending on the ultimate use of the machine. Thus, not only are motherboards processor-specific, they are often also, technically application-specific. You can use any motherboard and processor combination with any application, but the chipset may determine

3. Different chipsets require different types of memory. If you're using SDRAM in your current system, but upgrade to a motherboard based on an ESD chipset, you'll need to get ESDRAM instead. This factor is worth paying attention to for a couple of reasons. First, the performance factor. DRAM (double data rate) SDRAM has twice the theoretical speed of regular SDRAM, giving it a definite advantage in many applications. ESDRAM, used with Pentium 4 processors, is touted as one of the fastest types of memory around, but it is a real type of memory. On the data flow through all of the memory chips in single file, increasing speed in applications with increased data flow and causing potential bottlenecks in applications that require burst-style data (many data chunks).

Because of these three variables (socket type and required memory are the ones that will easily stop you), it's important to make sure you have everything in place before the upgrade, an aversion of the other components.

If you just want to upgrade the processor, make absolutely sure the socket is the same otherwise you will need to replace the motherboard too. And if you have to replace the motherboard, you may need to replace the memory, depending on which chipset your motherboard has.

**Case and power supply**  
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## ON THE EDGE: COMING-SOON PRODUCTS

# Negotiating the perils of upgrading

Continued from page 46

with your PC case and/or power supply. Peripherals & boards are a lot power hungry and require at least two separate connectors from the power supply, and sometimes three. One of them is the same plug that has been used on ATX-style boards

for a while, and the second is a small four-pin connector known as ATX 12V, which at 12-volt power. On particularly hungry systems, there's a third connector, known as ATX Aux, which resembles half of one of the rising-power plugs used on older AT motherboards. If you already have all three on

modules drawing from your power supply, you should be safe with a Pentium 4 board. If not, you may have to swap the power supply, though it's almost as cheap just to get a new case.

Another issue with the case is the way the motherboard connects to the buttons and LED lights. Most cases come with a

series of smaller individually powered wires, which require a really sturdy board to connect and a fair amount of patience. Other boards attach directly to the Pentium 4 motherboard using a single one-block of jumpers designed for that board. If your case comes with the individual jumpers, you should be able to hook them up to the motherboard without incident. If not, you may have to do a bit of soldering.

One last thing about case: although every new case comes with the mounting holes for the drives molded right into the case (there will be bumps on the back plate), some will still require you to install little metal standoff screws onto the plate. Not every motherboard has the mounting holes in exactly the same place, so install standoffs before you try installing the new board, or you could do some damage if an old standoff is in the wrong place, or if you accidentally fix the board to a location that has no backing support.

## Drives

The long and short of it: make sure you have them ready.

Upgrading your motherboard is also a very tricky proposition for another reason: the drives that a motherboard needs to function are at the very heart of your operating system. To swap motherboards out and replace it with a change new board and your system will likely do some serious things and a much of your hardware will probably stop working.

The most notable item that will become useless following a motherboard transfer is your CD-ROM drive, which is especially problematic, because most of the drives you'll need to make your new motherboard work are, you guessed it, on a CD-ROM included with the motherboard.

Your best bet is to copy all relevant files over to your hard drive before you swap the motherboard out, including making a copy of your entire Windows installation CD. That way, if you can access the hard drive, you'll be able to access all the files you need.

In the worst-case scenario, your system configurations may not get along with your new motherboard at all, requiring you to reinstall your operating system. Make sure you back up all of your important files before you attempt to swap a motherboard, so in case you have to reformat your hard drive.

Special note to people reading this because their motherboard died before they could prepare their system for a motherboard swap: If you have the money, you may want to take the opportunity to buy a new hard drive at the same time—it'll be a lot easier than trying to fit an old Windows installation, and you'll be able to slave your old hard drive to the system to retrieve your important data. (Plus, you'll probably end up with a much bigger hard drive to boot.) ☐



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## Banking on small operators

As small business portals expand financial, legal, purchasing, and information offerings, Canadian entrepreneurs have fewer reasons to leave their desks

By Tara Wondol

**T**he Internet has changed the way many businesses interact with customers. One familiar example is Federal Express and the transformation that has occurred with parcel tracking—down placing someone as customer service to going online and tracking the package yourself.

But it doesn't stop there. Many small-business owners are now turning to the Internet to get a range of services and information they need to run their businesses day to day.

Take banking, for example. Small-business owners have been putting pressure on Canadian banks to come up with new—often Internet-based—ways of providing financial services.

"Small businesses have often looked at banks with a bit of a disgruntled view for many years," says Robert Peterson, president and CEO of the Toronto-based business (www.biznetcan.com). "BizSmart is the first attempt to come up with noncommercial changes in banking for small-business people."

At its core, bizSmart is a no-frills daily banking service developed by the Canadian Imperial Bank of Commerce (CIBC) and Staples/Business Depot. It offers Canadian small-business owners



services that do away with deposit and withdrawal fees, account and membership fees, as well as fees for lines of credit. But bizSmart claims to be more than just an online banking service.

Continued on page 21

## Reluctant travellers turn to Net

**BROOKLINE, Mass.**—After the Persian Gulf War ended in 1991, there was a decline in business travel and a short-lived surge in the use of video to broadcast meetings. The Sept. 11 terrorist attacks have spurred renewed interest in using pictures to replace travel, and one expert predicts the trend is here to stay.

Andy Nilsson, senior analyst and partner with Wanshous Research (www.wanshous.com), a firm that specializes in multi-media communications, videoconferencing, and streaming media, said he believes the move to video over the Internet will have staying power for two reasons.

"First, the Gulf War was in the Persian Gulf but was happened (Sept. 11) was in our backyard," said Nilsson. "Second, the technology has gotten dramatically better in the last 10 years, and will be more attractive to businesses and corporations."

Since the attacks, at least one Fortune 500 company has reported that internal use of its videoconferencing system has jumped, he said. "I have heard from many videoconferencing service providers that my business is up," he added.

According to Nilsson, the three most

Continued on page 24

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# Banking on small operators

Continued from page 70

It also acts as a small-business portal, giving access to a wide range of information and services targeting small-business operators.

"Many [small businesses] have told us that they were looking for [information] that can educate them on how to run a business, information on managerial services, how to hire people, how to do subcontracting or even how to prepare a business plan," Pearson says.

By going to Iwillnet's Knowledge Centre section, users can tap into a library of articles and information compiled by experts, interactive presentations, online tutorials, and templates.

There is also direct access to e-money [which ships items through the process of incorporation], Equifax Canada Inc. [for assessing commercial credit information], and Intuit's QuickBooks software.

"A small business can query this information any time of the day along with the interactive component such as the ability to download a PowerPoint presentation," Pearson adds. "On the other side, we have several buying services. This is where we offer discounts on services with Dell Computers, FedEx, and Intuit. So a small business can get 10 percent off of a FedEx courier service when they use business or get discounts on a Dell computer or Intuit's QuickBooks."

"When we asked where they would like to sign up for banking services, they said not at a bank."

Iwillnet also has a bricks and mortar component. With nine selected Staples and Business Depot stores in British Columbia, Saskatchewan, Alberta, Manitoba and Ontario and you'll find a small-business centre [business are listed online].

"When we asked where they would like to sign up for banking services, they said not at a bank," says Pearson. "Banks are typically where there is no parking and the hours are poor. What they told us was that the place they enjoyed the shopping experience was at Staples. So at Staples we are creating a one-stop shopping environment where they can get their supplies and do their banking. We will work two of our business leaders and they can come in and talk to people about any questions they have."

Another common business activity gaining an Internet spin is bill delivery and payment. Recently, Canada Post launched epost [www.epost.ca], a free ser-

vice that lets companies send bills to customers electronically. A business wanting to receive accounts electronically can select this option from a list of businesses that offer the service, including A&M Board, Canada Post, Canadian Tire, Cresta Gas, Columbus Home, Conco, Holt Renfrew,


Home Hardware, Media Auto Experts, PEI Tax Services, Petro-Canada, Zellers, and many developed as regional utility companies. A list is available at the epost Web site.

Once a bill is received, payment can be made by credit card, electronic funds


transfer, or through an Internet bank service used by the business. Epost uses a reference number that acts as proof of payment. Payment histories can also be tracked.

Recently, the epost service was added to

Continued on page 72




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## TECH ENTERPRISE

### Reluctant travelers turn to Net

Continued from page 79  
popular methods of transmitting video, audio, and sometimes data are Webcasting, Webconferencing, and videoconferencing. The differences between the three are subtle.

- Webcasting can include audio, video, and data, because it has about a 20- to 30-second delay, it is used for one-way communications, not conversations. Many corporations use Webcasting to get expertise, internal information to a specified audience.

- Webconferencing consists of an audio call plus a Web site where people can see a presentation (often PowerPoint-type slides). Webconferencing has some two-way communications capability.

- Videoconferencing is audio, video, and data, all with two-way communication. It requires specialized equipment to be set up at each location participating in a videoconference.

Even before the terrorist attacks, use of all three of these types of services had been growing consistently as prices fell and more companies formed sites for them, said Nilsson. He recalled that the Web streaming market rose rapidly a few years ago, leading some to predict it would be the new television.

"A lot of people got burned with the burst of the dot-com bubble, but it is coming back now," he said. "People are using it to get out specialized information."

A major obstacle of Webconferencing is network clogs, when corporations cannot share quickly down or gain for investors, analysts, and media, he said.

Nilsson said video over the Internet will replace travel in a lot of circumstances, but not all.

"Team meetings, partner meetings, meetings with suppliers, and customer support all are examples of things that can be done by video."

"There are still some places where you need to go shake somebody's hand, but there are a lot of times you do not have to be there in person," he said. "Team meetings, partner meetings, meetings with suppliers, and customer support all are examples of things that can be done by video. If you are the corporate attorney in a Fortune 500 client, give them Webconferencing capability and you can keep in touch all the time."

According to a Yahoo spokesperson, Internet broadcasting had already been drawing increased interest in July and August from large companies, as well as from convention and meeting planners who saw their travel budgets drying up. —Newby



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# Adobe means business with PageMaker 7.0



By Jacques Surveyn  
and Melissa McCullough

Once upon a time, PageMaker ruled the desktop publishing (DTP) landscape. Now, that crown belongs to QuarkXPress, eagerly written professional publishing environments, such as newspapers. It's Adobe InDesign, and not PageMaker, that competes directly with Quark as that space.

The low end of the DTP market has been populated by products like Microsoft Publisher, which get over more powerful and easier to use. PageMaker is also facing competition from illustration programs, like CorelDraw, that have more page layout features with each revision.

So, where does PageMaker fit into the DTP industry it helped define? If you're not a design professional, but you're not a complete neophyte, you need professional-looking documents that can be printed locally, commercially, or exported as PDFs. You want and need colour fidelity.

Continued on page 76

## PageMaker 7.0

From Adobe  
www.adobe.com  
Out of love for home users Adobe created a getting started manual, and tutorial necessary for but because it was never been otherwise sold documentation, installation, and other help was Summary PageMaker is a solid full-featured desktop publishing solution geared to the business professional. It is a mid-range publishing solution ideal for users who need relative ease of use, functionality, and widespread commercial printer support.  
Overall rating: 7.5/10

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#### Active means business

Continued from page 75  
and mobility across your publications.

You want a wide range of professional templates that you can extend and modify for a corporate look and feel. Finally, you want a tool that, unlike Microsoft

Word, will not result in graphics and effects falling all over the page when you make changes, or frustrating "surprises" when printed out. Your solution? PageMaker 7.0.

If you already own PageMaker, the upgrade to 7.0 is a no-brainer. But what

about the new user? With a list price of \$499, PageMaker 7.0 is significantly more expensive than Microsoft Publisher, at \$129.

But friends, do not be swayed by price. PageMaker and Publisher are not in the same snack basket. Publisher is an easy-

to-use, template-driven entry into desktop design. But PageMaker is a powerful, fully featured, DTP solution with room for growth along with its roots.

Publisher has its place—in a single printer home or small business solution. But you could send your Publisher files to the service bureau using its Pack and Go utility.

But your results will be spotty and your handle-quotient high when you send along Publisher files filled with RGB colors, transparent fonts, and WMF graphics.

CorelDraw is a closer competitor to PageMaker in a mid-range solution, but as an all-in-one point, illustration, and layout tool, CorelDraw's graphics suite is really a different animal altogether. Good, if you need all three and don't currently use Photoshop or Illustrator, but too broadly based for DTP alone.

So, now that we have resolved PageMaker's location in the DTP limbo-world, let's take a closer look and see where it shines and where it lacks some lustre.

#### Templates

Rating: 5/5

On startup, PageMaker 7.0 offers a nifty template dialogue that allows users to select from a set of 20 design categories, such as ads, brochures, direct mail, and newsletters. The template preview and



quite small and the numeric file naming convention kindly may impede selection and identification.

There is some logic to the numeric file naming, however: the leading digit refers to the difficulty level—from zero, for easy black and white templates, to three, for advanced, full-colour commercial press templates.

However, descriptive file names would vastly improve the selection process.

Generally, you have to double-click and open a copy of the template as a new file in PageMaker to get a better "look-see." If it isn't what you need, you have to close out of the publication, go to the Windows Menu, and restart the templates through the Plug-in Palette sub menu. It is a clumsy process at best.

However, the templates are excellent—elegant, professional, and far above those provided in Publisher.

They demonstrate that PageMaker is clearly targeting a business base. The up-

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**Essex's new workforce**

Continued from page 48

The secret to the permanence of CMO output is in its pigment-based inks. They are waterproof and much more fade resistant than the dye-based inks used in the majority of inkjet printers.

Until recently, pigment inks were not viable for colour printing, particularly photo printing, because they produced a more limited range of colours, and the colours they did produce were duller than a conventional solvent colour.

Epson made a breakthrough in page-based talks with its Stylus Photo

Significantly reduced stress levels

This is a photo-quality subject aimed at photo enthusiasts, and carries a \$4,200 price tag.

The C80 is the next generation of pigment-based inkjet printer, and this time, Epson is aiming at the mainstream. With a rated output for black text of 30 pages per minute (ppm) and 10 ppm for colour, it is now Epson's fastest inkjet. The printer has both parallel and USB ports and comes with Windows and Macintosh drivers.

Epstein says the CBO is the first preference for a new foundation of management (all it

calls Duraflex. In addition to being waterproof, it has an estimated full lifespan of around 20 years.

We found prints of photographs were not as rich as the output from Epson's Stylus Photo 760PE.

That isn't surprising, since the TR66FX is a set-colour model optimised for photo printing, while the 59C is a general purpose four-colour printer.

That being said, the C30's output of photographs is very good, as is the price. It's ability to reproduce fine details, thanks to its 1,800x1,200 dots per inch print resolution.

To help the cause of economy, the Old uses individual ink tanks, which are a lot larger than what you normally find on rollers.

Like other recent Epson printers, it supports variable droplet sizes, down to three picoliters. We didn't have the test run long enough to deplete the tanks, but printed out more than 30 full pages of photographs.

Another factor that will make this printer more economical to operate is the fact that the pigment-based inks will produce excellent output even on plain paper. The reason for this, according to Epson, is an inherent characteristic of the pigment inks themselves: they are not absorbed into the paper as much as dyes are.

Upon its predicting that the CPO will become its weatherable model, especially for small or home-based businesses. The waterproof inks will allow anyone to produce small quantities of durable full colour handbills, brochures, business cards, etc., without the higher costs associated with other processes.

Along with the CME, two network-ready models will be available.

The CROWN will include a wireless 802.11 print server module, while the CROWN will include a wired Ethernet print server module [2].

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#### Abstract

Continued from page 77

DTP solution by incorporating extra features that maximize cost of use.

Test on the list multiple undo/redo. Please, one level of undo? The **Revert** command (to the last saved instance of the document) is a nice feature, but still a ton of time can be wasted redoing work when design plans go awry between saves.

Second, improve on publication help. The new bar shows help (place the mouse over an icon and a pop-up message tells what that icon does) is great, but it is missing from the toolbar and most of the other dialog windows/bars.

Also, right mouse clicks in Windows should always bring up a context-sensitive menu, depending on what object is being clicked; it does so only some of the time in Mac OS X.

Finally, expand the written documentation. The ideal way would be to incorporate the Adobe PageMaker Classroom in a Book materials with the software. They are currently sold separately for \$45

Adobe would do well to remember that by focusing on business users, it has moved from a target audience that knew what CMYK, EPS, and colour profiles were to a group that may not and doesn't have time to learn the hard way.

**Conclusion:**

If Adobe has done one thing very well, it is to tie together a diverse set of graphics, Web, and DTP tools into a complex development ensemble.

There are PageMaker formats we didn't even get to, such as the proxy model, the booklist builder, layers, beyond adjustments and programs such as Adobe Type, Distiller 5.0, and ATM Inc. that add more value. **D**

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# Microsoft steps on message at XP launch

Continued from page 40

"The whole PC industry has come together around this launch," Gates told his assembled audience. "Windows XP is the most powerful, fastest, most reliable operating system we have ever done. We've poured literally billions of dollars of devel-



opment into this new product that was based on the feedback we had from our users, based on a vision of new architectures that the PC could enable," and Gates.

"The new security is very important. The privacy control is important. The messaging for real-time communications is a foundation. The new personal digital experiences. Really we'll look back and say it's amazing since these are the ways that people deal with information."

The company says XP will give both consumers and businesses more reliability than Windows 2000. It is touted as being 16 percent faster running desktop applications and up to 77 percent faster when managing content creation.

It is also supposed to be faster than Windows 98 SE when booting up and up to 25 percent faster when loading applications. It also features an improved Windows Media Player, digital photo tools, a Compatibility Mode that allows users to run older programs on Windows XP, ClearType for improved text rendering on LCD monitors, and nearly 82,000 typeface drivers.

As well, Microsoft has added a variety of other features that are part of its long-term Net strategy that was announced 18 months ago.

According to Ulegg, a key component of the strategy is to deliver Web-based services and information. XP has been developed to handle access and delivery of such services, many of which will be utilized not only by Microsoft but by a growing number of third parties.

At the Toronto launch, Microsoft Canada announced that XP users will be able to directly access Future Shop's online photo printing services, Future Photo.

Heather Macdonald, senior manager of Future Photo, said Future Shop has been working with Microsoft to develop make the service as seamless as possible for XP users. In XP users go to the site that can get in their images and select Order Prints. Click on from the screen

"When they click on that the Future Photo offer comes up. Then it is a simple matter of clicking through a screen and placing an order," Macdonald said.

The system notifies users if the photo resolution is too low for the size of print they're selected, allowing them to fix it

before finalizing the order.

Erik Mail, Microsoft Canada's Windows XP product manager, said more companies will begin delivering Web-based services to XP users in the very near future.

"The long-term goal for Microsoft is to

move to software as a service," Mail said. "You will be able to buy the software as a full package, but over time you will be able to get onto the Internet and get them. And we are also going to be providing other services like calendaring and contacts." □

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# Tis the low-cost old device

Continued from page 40

- that when you select an item it is launched. Previously this just opened the documents folder which was useless.
- System login has speeded up, taking only 10 to 15 seconds, and you don't see the desktop elements loading. Rather, you get a progress bar and when it's done everything appears ready to go.



- Menus seem to drop down faster, and are generally more responsive.
- Most applications open in one or two seconds, a real improvement over 10-15.
- The DVD Player application is very

high quality, and much more responsive than the OS 9 version.

- Galileo view works better. You can now move columns and folders are marked with a triangle to indicate they will fit in the next frame.
- Scrolling whole work everywhere in the Finder now? This was a big get gone with 10.0.4.
- Controls that used to take up dock space—for example, monitor resolution, sound volume, battery level and AirPort—now fit in the menu bar next to the clock which clears up more room in the dock.
- System wide screen capture keys are back. Apple+Shift+Q for the whole screen and Apple+Shift+4 for a selection. They are used to the desktop as TRF files.

In total, 10.1 fixes dozens of bugs and speed issues we used to drive us mad and Apple has promised to provide occasional upgrades every month so things will continue to improve until the release of 10.2, probably to arrive in MacWorld San Francisco in January or Tokyo, later in 2002.

# New PowerBook G4 released

After only 40 months on the market, one of the bestselling PowerBook models in recent years has been updated. The Titanium G4 was released last January at MacWorld Japan and marked the beginning of high laptop sales for Apple, as it was followed several months later by an all new iBook. However, as the PowerBook G4 demanded a premium price (\$3,900 to \$5,900), it seemed to some that Apple should make the open a bit more enticing, and so on Oct. 16th, it did just that.

The new PowerBook G4 is faster, cheaper, and more flexible than the original and should prove to be a huge hit with PowerBook customers. On the performance side, Apple has answered most of the complaints about the first G4 laptop by addressing CPU speeds, and bus speed. The CPU speeds have been increased to 550 and 667 MHz (line 400 and 500 MHz), and the 667 MHz model features a 135 MHz main bus, which is a first for an Apple portable. In addition, these purchases are the top model may find that low price. 133 MHz RAM is quite pricey but the

first few models, so you may want to wait to upgrade it.

The storage has been significantly upgraded as well, with a 20 GB hard drive on the low end and a choice of 30 GB or 40 GB on the top model.

The biggest complaint about the old PowerBook G4 however was the outdated 8 MB Rage 375 video chip. Apple has replaced it with a 4x AGP Radeon 16 MB card, which should offer more than double the performance of its predecessor.

Other small tweaks include standard Apple Keyboard on all models (laptop first) and an included AirPort wireless card on the 667 MHz model.

RAM remains unchanged at 128 to 256 MB, but for a limited time Apple is offering to double the RAM on all PowerBooks for a much more reasonable 256 to 512 MB configuration (within certain only).

Overall, these machines are much closer than the models they replace while still maintaining the same 3.54 cm (1.3 in) thin case and light weight.

As for pricing, it's actually dropped.

Continued on page 43



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# Handspring unveils Treo

New line emphasizes communication, drops SpringBoard slot



Handspring, is a colour Treo, which it expects to debut in mid-2002 for about US\$599

## Danger adds camera to integrated device

Handspring isn't the only company to unveil an integrated device this fall. Danger ([www.danger.com](http://www.danger.com)), co-founded by Apple and WebTV senior, Andy Rubin, showed off its first product, the Hiptop, in September. The small pager-like device has a screen that flips up to reveal a tiny keyboard. Like the Treo, it has messaging, Web browsing, and phone functions, but also adds a digital camera option to the mix, allowing users to snap and send images within seconds.



Consumers will not be able to purchase a Hiptop directly from Danger or hardware retailers, however. Instead, Danger says it will be selling its end-to-end platform (which includes a back-end service, standards-based framework using programs written in Java, and the Hiptop hardware) to wireless service providers who will then sell hardware and service bundles to consumers.

Danger says the Hiptop will be available in early 2002, but expects it will be a couple of months before it has any announcements on pricing.

The company says it expects the Hiptop will be available in Canada sometime in 2002. Availability here, however, will depend on how soon Danger finds a Canadian wireless partner. Q

and no keyboard, for those who prefer to use Graffiti to input text. Along the bottom are buttons for launching phone, date book, Internet, and messaging functions, and scrolling up and down. On the left side, below the headphone jack, is a jog dial for easy scrolling when the device is in the user's left hand.

The blue metallic case has a protective flap lid that doubles as a speakerphone and standard keypad when opened. When closed, users can still view the display to see the name of a caller, read messages, or scroll through the calendar and other applications.

Calls can be dialed using the on-screen number pad, clicking on one of 50 speed-dial icons, or scrolling and clicking through the phone list, which can hold 1,000 entries and dialed call histories. Voice and data communications operate on GSM networks, and will be GPRS compatible (requiring a software upgrade). Handspring plans to release when GPRS services are widely available.

In addition to accessing POP3 email accounts, users can send and receive SMS (short message service, a format used to send text messages to devices with text screens, like cellular phones) and Internet chat messages. Keypoints can be selected from the phone list, and common SMS phrases chosen from a pull-down menu.

For the Web, the Treo uses the Mosaic browser, which Handspring says is fully HTML and WML compatible and up to four times faster than other handheld browsers.

The Treo has a four-bit grayscale display capable of rendering 160x160 pixels. It measures 1.18 in. by 7 cm (4.57x2.76 in.) and weighs in at 153 g (5.4 oz.)—about 1 cm shorter and narrower and slightly lighter than Handspring's standard Vioz model.

It has an integrated dual-band GSM radio module, 16 MB of memory, a 33 MHz Motorola Dragonball processor, and rechargeable lithium-ion battery. It includes a wired charge with USB HotSync cable (a serial cable is available separately) and headset. In addition to the Palm Desktop, the Treo comes with software for synchronizing with Microsoft Outlook out of the box.

Missing from the new device is a Springboard slot—the expansion port that helped distinguish Handspring's Vioz from their Palm siblings. According to a company FAQ, "With Treo, Handspring plans to have two distinct product lines: the Vioz handheld computer and the Treo communication line. For communication products, compact size is of paramount importance and expandability is secondary."

The Treo 180 and 180g models will be available in Canada in early 2002 for about \$550. Pricing for GSM service activation will depend on the provider. Handspring says it is currently in negotiations with GSM carriers and expects to announce a Canadian partner soon.

Also on the works, according to

than 450 g (1 lb.) lighter than the original. Now after six months, Apple has leaping up the space—a CPU boost and a slight price cut on combo-drive models—to keep the model popular with buyers.

The base 500 MHz iBook with CD-ROM drive remains virtually unchanged at \$1,099—the only benefit it receives is a larger 15 GB hard drive and an increase to 128 MB of RAM. The models with DVD CD-ROM or combo drives, however, receive a significant across-the-board speed boost in the form of a 33 percent faster 600 MHz system bus and 640 MHz G3 processors.

Unfortunately, RAM remains at 64 MB for all models, but hard disks have been increased to 15 GB on DVD and CD-ROM models and 20 GB on the combo drive model. The other space remains unchanged, with all models coming with two USB ports, a single FireWire port, 8 MB cache, 128 video card and video out.

The only change in price is the combo drive model, which falls \$100 to \$1,099. The new iBooks with the faster bus and CPU are an amazing deal for computer laptops and should sell very well over the holiday season.

All of the newly announced iBook and PowerBook models include System 9.2.1 and OS X 10.1 on the hard drive, as well as a new AC power adapter that is more compact and portable than the old model. Q

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By Megan Johnston

Handspring ([www.handspring.com](http://www.handspring.com)) has come to the rescue of those running out of pockets for the mass device they currently need to work and communicate away from the office. In its new device, Handspring integrates email, messaging, Web browsing, cellular phone functions, and organizer applications.

The Palm OS-based Treo comes in two models: the 180, which has a small QWERTY keyboard beneath its display, and the 180g, which has a longer screen

## Tis the low-cost iMac season

Continued from page 82

from the introductory prices of the old models, with a 250 MHz system selling for \$1,049 (down \$40), and the top of the line starting at \$1,699 (down \$100).

There are also some new build-to-order options. For example, you can now get a 48 GB external hard drive or Internal CD-RW drive, although there is still no iBook-style DVDRW-RW combo drive.

The 667 MHz model is definitely the technological breakthrough here and it seems Apple will probably want to move the low end to the 733 MHz based as soon as pricing allows. In the meantime, performance of the low end model should be about on par with the old 500 MHz model, but with double the video performance. Some benchmarks may be slightly lower on the new models due to the change from 1 MB L2+2 MB to 256KB on-chip cache, but most tasks the difference won't be noticeable.

## New iBook announced



The iBook revolutionized Apple's sales in the consumer and education markets, offering a reasonable amount of power in a nice small package that was more





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Continued from page 45

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more widely implemented RTT file.

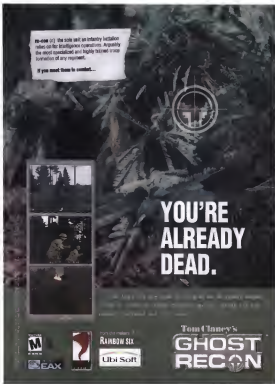
The AnyPoint module is now a small white box with flip-up antennas that connects to a PC via an included USB cable. The modules are designed to work with As a bonus, the CD includes MissionMaker software, and the exclusive game Ex-



**Note:** The adapters are compatible with Windows 98, Me, 2000, and XP. A PC Card version of the AnyPoint Wireless II Network card is available for \$199.

## More

There are the most recent products to be sent to TGP's Test Lab, but we try to review the only products worth considering. Check our back issues, notably "Gone wireless: the LAN connection" (TGP May 2003) and "Hands on IEEE 802.11" (TGP October 2001) for reviews of other wireless products from Xcom, Linksys, D-Link, SMC, and Uplink. Back issues are archived online at [www.crn.com/issue](http://www.crn.com/issue). Hit "Publications" on the home page menu bar, then select *The Computer Buyer's*. □



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which could not be interpreted as a sign of the government's narrowness.

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## INTRODUCTION: The Computer-Paper Continuum [www.ccsdemon.com](http://www.ccsdemon.com)

## Motorola looks at alternatives for powering consumer electronics

By Margaret Eckhardt

The company that is releasing a wind-up power source for its cellular phones later this year (see What's New, I/P November 2003) says it is also making headway in developing alternative energy sources for other consumer electronic devices.

Midwest (www.midwest.com) has reported that scientists at its research labs in Leage, Ark., have passed some significant milestones in miniaturizing fuel cells for

use in a range of devices that could include cell phones, laptop computers and digital cameras.

A fuel cell is an electrochemical device that converts fuel directly to electrical energy, according to the U.S.-based National Fuel Research Center ([www.nfrc.edu](http://www.nfrc.edu)). Though invented in 1839, the technology has recently attracted attention as a potential replacement for the fuel-burning internal combustion engine. The automobile industry is re-evaluated on the technology because of safety

mixed prototype, however, they have successfully scaled down and integrated many of these components, making the size of the combined device more suitable for use in small consumer electronics.

The experimental prototype measures 5x1x1 cm (2x0.4 in.) produces more than 100 mW net power continuously, and has operated for more than a week at-a-time in the lab with little degradation in performance. Motorola says.

*Acute Storage of Metabolic Labe. Comp. 9*

Continued on page 8

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# Careers & Training

IT Career Trends • Productivity Tips and Tricks • Book Reviews • Tutorials

## Word command centre



Geoff Suttie  
Tutoring

**H**ave you ever wished that your frequently used Microsoft Word documents were in one easily accessible place? Well it's not only possible, it's a great way to set up your computer so that when you open a document in Word, links to the documents you use most appear first. Better yet, you can set this up for someone who is new to Word, so they can instantly see which documents they should use for which purpose.

This month, we'll create what I call a "personal centre" for Word: a document that will appear whenever Word is loaded and from which you can click on icons to open existing files or create a new one. We've covered the command centre in Word 2003, but it should work just fine with other versions of the word processor.

### Creating the page structure

To begin, create a new Word document, then use it to fit the screen. To do this, choose File, Page Setup, pick the Paper Size tab, and in the Paper Size dialog box choose Custom Size. Set the Height and Width of the page so it is approximately the dimensions of your screen. Using a ratio of 82 width to height (33 cm wide and 41 cm high, for example) would suit.

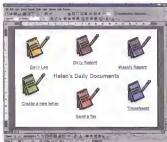
Now choose the Margins tab and set the Top, Bottom, Left and Right margins to 1 cm and click OK. If a preview appears, telling you that the margins are outside the printable area of the page, choose Ignore (you won't be printing the document and want the maximum page size to work well).

To view the document clearly, choose View, Zoom, Whole Page, and the page should fit inside the Word editing window.

### Creating the images

To make a colourful command centre, you can use images for the links you create on the page. To do this, you'll need to make sure the images you plan to use are approximately the size before you begin (175 to 300 pixels high or wide is a good size). If you can't find an image relevant for each document you'll be creating a link for in your command centre, use a single image and use it in different colours in your graphics software. The result will still be very attractive.

To reduce the size of an image in PaintShop Pro, open the image and choose Image, Resize, and click the Pixel Size option button. Type in either the width or the height you want and enable the Maintain Aspect Ratio of checkbox. I checked box. From the Resize Type drop-down list, choose Bilinear Resample and click OK. (If Resize Type doesn't work for your image, choose the Stretch Size option and click OK.) This will resize the graphics without distortion. Save the resized file. To use a single image in many colours, Copy and Paste to create the number of images



Using Hyperlink and field codes you can create a command centre for File use in Word which gives you one step closer to your dream document.

you need, recolorize them, animate them, and finally save them.

### Creating the links

Once your images are ready, you need to create the links. There are two processes for creating the links, and the type you use depends on what documents they open. A Hyperlink, like those you see on a Web page, opens an existing document. To make a link that opens a new document, I'll create a letter using a company template, for example, so you have to create a macro. We'll look at those two methods in turn.

To create a simple hyperlink, first add the image to the document; you'll use it to anchor the link. Use Insert, Picture, From File, locate one of the images you've prepared, and click Insert. Right-click the image and choose Format Picture, the Layout tab inside the In Front of Text option and click OK. Move the image into position on the page.

To add the link, click the image to select it and choose Insert, then Hyperlink. In the dialog box, click Existing File or Web Page, then click File so you can browse to find the document that you'll link to this image. Select the file and click OK. If you have bookmarks set in this document and you want to open the document at a particular position, click the Bookmark button, choose the bookmark you want and click OK. Click the ScreenTip button, type a brief description of the document, click OK, then OK again to exit.

To test your new link, click somewhere in the document away from the image so it isn't selected, then click the image. The document you've linked to the image will now appear in the Word window. You can close it by choosing File, then Close.

Continued on page 92

### Flash Forward: Part 2

## Tools of the trade

Part 1 of the Flash Forward tutorial series ran in TCP June 2001 (it can be viewed in our online archives at [www.computepaper.com](http://www.computepaper.com)). In order to follow the materials, you'll need a copy of Flash 5. You can download a 30-day fully functional demo version from the Macromedia Web site. While use of the demo is limited by time, it only counts the actual days you use it, so if you use it sparingly, you should be able to follow along for several articles. Or, if a friend has a legitimate copy on a computer you can use, or if you can buy a copy while looking at this series of articles, all the better.

By Keith Schenck-Hobbs

**L**ike graphic artists, who are skilled in using various pens, ink, air brushes, and paper, Flash artists need to know the tools of their trade to get the most out of them. In this article, we'll take a close look at the various functions in the Flash toolbar.

Those who work with other professional graphics programs will be familiar with many of the tools here. What makes Flash different from a typical graphics program, however, is that it's raster-based—it automatically tries to approximate the various lines and shapes you draw.

### Drawing lines

Click on the Line tool (it looks like a slanted line), then move your cursor over the Stage. The cursor will change to a cross-hair icon. Click and hold your left mouse button and drag it across part of the Stage. When you release it, you'll see that you've drawn a straight line connecting the beginning and end points.

The default colour for the line is black. If you want to change it, click on the Arrow tool (a solid black arrow) just above the Line tool, then click on your line. You'll notice that your line now appears "thicker," indicating that it has been selected. Now, go down to the Color section and click on the box beside the image.

Continued on page 92

# Reading up on Linux

Four books to help you up to speed on the open source OS

By Jacques Surryer

Recently, Linux has come under more and more resident attacks from Microsoft, with its executives wondering aloud whether open source Linux will signal the end of intellectual property as we know and love it in the computing world.

But Linux adherents reply that their OS has some of the leading transaction processing benchmarks for games, and that new Tux and Apache Web server performance numbers are 2.5 times better than Microsoft's best Web server on identical PC servers.

In effect, you know Linux has arrived when Microsoft starts attacking it with some of its inverted FUD (fear, uncertainty and doubt) logic.

The simple fact is that Linux is doing quite well in the server market, particularly for Web server machines where it is the fastest growing operating system in the world.

In addition, Linux has gained momentum in the embedded processing field because the combination of its robust performance, low royalty price, and open source is very conducive to developers' needs in that area.

But Linux has been slow to take off on the desktop despite being out and out the outstanding GNU members (GNOME 1.1 and KDE 2.0) plus a growing number of top-notch applications by Apple, Corel, and Sun.

And now, desktop and notebook PCs running Linux can be ordered directly from major PC vendors like Dell and IBM.

So, if you want to find out the latest on Linux for either business or practical home use, here are four books worth considering.

## Inside Linux

Author: Michael Fisher  
Publisher: New Riders Press  
www.newriders.com/  
ISBN: 16 included CD  
ISBN: 07554-1020  
October 2001 \$35 pages  
Price: \$60

**Format/Type:** New Riders has a reputation for well-illustrated books, so it was a bit of a surprise to find much less light on illustrations and diagrams. **Content/coverage:** Content picks up where the missing left off. The book helps the beginner

Linux distribution manuals, with sets good descriptions of setup and TCP/IP networking configuration. **Rating:** 4.5/5



This book gets users started in Linux as very comfortable fashion. Think of Inside Linux as an approachable combination of a getting started manual, plus a user's guide to Calders, RedHat, Slackware, and SuSE distributions of Linux.

Fisher spends a lot of time explaining utilities, such as RPM (for installing software on Red Hat and other Linux systems) and XFree86 (for configuring the X Window files for windowing operations with the KDE or GNOME GUI user face). Having spent hours fiddling with those utilities, trying to guesswork their functionality, it is a pleasure to see those topics clearly covered.

**You know Linux has arrived when Microsoft starts attacking the OS with some of its inverted FUD (fear, uncertainty and doubt) logic.**

But Inside Linux goes beyond the desktop needs and addresses some of the areas for using Linux as a Web and network setting. Network administrators and Web developers will appreciate the chapters on FTP, UTP, and TFTP because they clarify some of the key basic networking capabilities of Linux.

But Apache and the new performance champions on the block, the "Web Server, are not covered.

Inside Linux nonetheless is a welcome reference not just for getting started but

also working around inside the OS

## Linux in a Nutshell: 3rd Edition



Authors: Olin Siever, Stephen Bourcier, Stephen Rigney, and Bruce Dobson  
Publisher: O'Reilly Press  
www.oreilly.com  
ISBN: 16 included CD  
ISBN: 059600822

January 2001 750 pages  
Price: \$50

**Format/Type:** O'Reilly is the expert at creating compact yet complete references. The table of contents here is comprehensive and exact, while being designed. Black pages in the text give much the chapters, index and table of contents are not missing.

**Content/coverage:** The book's chapters are generally covered references that help fill in the lack of printed manuals. Linux is moving to be an open source software. Linux is moving to be an open source software. Linux is moving to be an open source software. Linux is moving to be an open source software. **Rating:** 4/5

Part of the problem with working in Linux is the vast heritage of Linux programming that can sometimes bring like an old-fashioned manual to each. People complain that there aren't enough programs available to Linux users and developers, whereas the opposite is actually true—there are too many.

This book comes home to assist in Linux as a Nutshell. The book does a good job of covering all the Linux low cost manuals that Web developers and system administrators in particular will need to know. There are well organized with more optional settings only noted.

But the examples are sparse—covering

only about one in four commands. And the authors could have treated some of the original command-line options that will be effectively replaced by GUI programs like file manager, Netscape browser and other services.

In fact, that is our main beef about this otherwise excellent reference. Devoting 50 pages to those old existing errors is and wastes, or 77 pages to go, and 70 pages for reasons covered that could have been spent on better coverage of KDE, Apache, PHP, or Perl, among the O'Reilly editors need to sharpen their pencils. The result is that Linux is a Nutshell is a good reference but not all that it could be.

## Beginning Linux Programming



Authors: Neil Matthew and Richard Stearns  
Publisher: Wile Press  
www.wiley.com

ISBN: 16 included CD  
ISBN: 067219715  
September 1999 360 pages  
Price: \$25

**Format/Type:** Check list of programming examples and use of example charts and highlighting. A few more screen shots of intermediate results would be helpful. **Content/coverage:** One really nice little book that explains how to get around in the primarily C based world of Linux programming. Much will be different for Linux programmers, but it is available and complete view to world of Linux programming. Linux level topics should get O'Reilly look of the same name. After complete look at C++ programming, but this book is a member. **Rating:** 4/5

## Professional Linux Programming

Author: Neil Matthew Richard Stearns et al.  
Publisher: Wile Press

Continued on page 43



# Tools of the trade

*Continued from page 49*

of the pencil. A colour palette will appear, and you can choose a different colour for your line. Note the hexadecimal numbering that appears at the top of the dialogue—by default, off of the colour values belong to the “Web-safe” palette, which means any colour you choose will display properly when you view browser.

Now, right-click on your line. You’ll notice a number of different options appear from the menu. Click on *Scale*, and you’ll notice that your line is now surrounded by a set of transparent boxes. If you move your cursor over one of these boxes, you’ll notice a “double-arrow” cursor that allows you to grab the box and drag the line. Right-click your mouse again, and select the *Resize* option. The

boxes will turn to circles, and you can now rotate the line. These two functions are very handy for creating simple animations—we’ll be using these later.

## Using the pencil and pen tools

If you want to draw simple, bearded lines, use the *Pencil* tool. Click on the *Pencil* icon in the Tools palette, and you’ll notice your cursor changes into a pencil when you move it onto the Stage. Try drawing a wavy line. When you release your mouse, you’ll notice the line you’ve drawn appears a bit more jagged than the line you drew with the *Line* tool. That is because *Strikethrough* is the default option for drawing lines.

To change that, go down to the Options palette and click on the stepped line icon. Two other options will appear: *Smooth*

and *Link*. Select *Smooth* and try drawing a wavy, bearded, now toothed line. When you release, you’ll see your jagged line has been softened, as the program “smooths” the line. Go back to the Options palette and choose *Link*. This particular setting will provide you with a line that most resembles what you draw, though you will still notice some smoothing occurs.

The *Pen* is a very different drawing tool. It can create either straight lines or curves based on two or more points. Select it, then click anywhere on the Stage. Now click somewhere else on the Stage. A line will automatically be drawn between the two points. Go somewhere else on the Stage, click and hold the mouse button down. Now you’ll see a line connecting the end-point of the previous line to the new point, along with a line opposite and perpendicular from the end-point of your line. If you move your mouse around, you’ll notice a curving line appears, and the further away you are from the end-point of the line, the more exaggerated the curve. This tool is excellent for creating perfect curved lines smoothly.

## The brush and eraser tools

Like the *Pencil*, the *Brush* tool allows you to set a specific line width. Click on the *Brush* tool, and when you move it over to the Stage, you’ll notice a thick black circle

appears in place of your cursor. Hold the mouse button down, and you’ll draw a thick line across the Stage. The Options palette contains a number of different choices you can play with. Click on the first drop-down menu to change the dimensions of the brush. Click on the second drop-down menu to change its shape. (We’ll take a look at the *Brush* Made options in a separate article.)

The *Erase* tool works pretty much the same way as the *Brush* tool, but “erases” objects instead of creating them. Select the *Erase* tool (at the bottom-right of the Tools palette), then move it around the stage and hit your mouse button. You’ll see all of your previous entries being erased. The Options palette also has a drop-down menu of eraser shapes (just as numerous as choice of brush shapes). There is also an option here called *Percent*. It is used to erase certain bits (or segments of lines) in any filled shapes.

Now you have the basics of how to manipulate simple lines on the Stage at Macromedia Flash. □

## Next Flash Forward?

Keith Spangh-Roth is the author of three books on the Web, with A’s in beginning “Moving your own Web site” series and a certified in Macromedia Flash. You can contact him at [roth@jewe.com](mailto:roth@jewe.com).

## The Net art line line

Web—Web2.0 the evolution of the Web art through an interactive timeline. This novel approach follows the development of a wide range of sites made by more than 100 artists through the 1990s; the presentations and information change as new tools become available. Written in Java, the Web art timeline is arranged around like a fan of luminous threads. Each thread corresponds to a particular kind of artwork or type of technology. The brightness of each thread varies with the number of artworks that it contains in each year, so you can watch the ebb and flow of different lines of thought over time. The site instructs. Move the mouse over the lines and they open to reveal tales of artworks. Click to launch one.

[www.artnet.com/artnet/online/](http://www.artnet.com/artnet/online/)

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**Reading up on Linux**

Continued from page 90

Linux Code available at [www.linux-labs.com](http://www.linux-labs.com)  
ISBN: 06620283

September 2000, 128 pages

Paper \$65

**Format/layout:** Lector starts with *Beginning Linux Programming*, but needs to be in a covers all areas of Linux programming in which desktop and desktop are important.**Content/coverage:** Lector brings together (Mithras) Stein to cover the wealth of new tools, desktop and application that are making this mark in the Linux world. More (or not), an open source, so coverage is very helpful. There is more coverage of PostGres and C/C++ than in previous MySQL and KDE, indicating some bias. Also, it omits Borland's pioneering role in desktop and IDE to Windows and Linux C++ development. Rating: 4.2/5ers, including VB and VC++ refugees from Windows, will find *Beginning Linux Programming* very helpful.*Beginning Linux Programming* is not about the nitty-gritty of Linux kernel programming. Rather it covers programming primarily in C with chapters on C++, Perl, Tcl, and CGI application programming in general, but with a consistent system programming orientation. Linux shell, terminal I/O, database programming, and many other programming and debugging tools get fairly thorough coverage in this book.*Professional Linux Programming*, on the other hand, spends a substantial page accounting users with Linux programming and leaps into advanced topics like network control and designing systems with user class.

The first third of the book evaluates, then describes in detail MySQL, MySQL, and PostGres, the three popular open source databases that are gaining wide use on Linux-based Web servers. A comparative evaluation is given followed by extensive chapters on PostGres and MySQL.

The next third of the book covers GUI design using the GNOME and KDE windowing libraries. Looking by these chapters, the authors are a bit partial to GNOME despite the fact that KDE has consistently stacked the market corner with faster and more functional software. But GNOME has big ambitions and big backers from major Linux and other software vendors.

Finally, the last third of the book covers through a chapter-length treatment of Linux Web tools, including Python, PHP, RFC, COBRA coding for distributed applications, then XML. The book concludes with chapters on documentation and deployment.

Unlike other multi-authored Linux books, this title gives a lot in the quality and choices for chapter material. One could ask why Python and not Perl or Tcl/Tk? Why PHP and not

**Quick Tips**

## Microsoft Publisher tips and tricks

By Helen Bradley

**Text wrap is on**

You can change the way Microsoft Publisher wraps text around an image by altering the wrap outline. To do this, select the image and click the **Wrap Text To Picture** button on the toolbar. Now choose the **Click Irregular Wrap** button to display the wrap marquee, which you can now alter by dragging its handles. To add additional handles to the wrap marquee, hold the **Control** key and click on one of the marquee when you want a new handle. To remove a handle, hold the **Control** key and click on the handle you want to delete.

**Wrap around an object**

To alter the way text wraps around an object, such as an AutoShape, first turn the object into a picture by placing it inside a picture frame. Select the object, choose **Cut**, then **Edit**, **Paste Special**, **As Picture**, and click **OK**. The **Wrap Text To Object** and **Click Irregular Wrap** buttons will now be accessible and you can follow the restrictions in the previous tip to edit the wrap marquee.

**Using your own screenshots**

To use screenshots in your publications, set up the screen to display what you want to capture and press the **Print Screen** key to capture the entire screen, or **Alt + Print Screen** to capture only the current window. To add the image to your

document, click on a new picture frame and click the **Paste** button.**Managing Custom Shapes**

Some Custom Shapes, in the shape of rounded rectangle shapes, have one or more small grey handles on them that allow you to alter their proportions in shape. Using these handles, you can turn a rounded rectangle into a sharp pointed rectangle or even a circle.

**Keeping the space**

When you want to move text to more objects, but keep the distance between constant, hold the **Shift** key and click on each in turn, then move them as a group. To coordinate the movement to strictly horizontal or vertical, shift moving them, then hold the **Shift** and **Alt** keys to limit the angle of movement.

**Quick Tip**

When you're doing a shape, such as an arrow, you can quickly flip it around to point in the opposite direction by dragging a corner handle back across the shape. For example, drag the bottom right handle so it is well to the left of the bottom left handle.

**Saving objects**

When you have a design element that you want to reuse, add it to your **Design Gallery**. To do this, select the object you want to save, choose **Insert**, then **Add**.

Continued on page 94



Wrox Press offers two books that introduce and deliver fully comprehensive coverage to the needs and concerns of Linux programming and development. Because Linux is winning big time as a Web server, more programmers are finding themselves developing for Linux, if not on Linux. These books cover the general noncommercially well.

C and C++ programmers who have developed in one of the various flavors of Unix will want to go directly to *Professional Linux Programming*. All other

Aspects of Linux (or Perl) are covered in Borland's introductory *Linux C++ compiler and IDE*, which transpares code transparently between Windows and Linux.

The reasons may be partly because price of Linux development is so far, partly

because Perl, Tcl, and other topics are covered already in *Beginning Linux Programming*, and partly because in 1,200 pages, *Professional Linux Programming* manages to do a robust job of covering the major tools for software development on Linux. □

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### Microsoft Publisher tips and tricks

Continued from page 94

Select on Design Gallery. Type a name for the object and pick one of your own categories from the selecting list (or type a new one). To use the object at a later date, choose Insert, Design Gallery Object, select Your Objects tab, choose the desired category, find the object, and click Insert Object.

### Scratch it

The scratch area among your Publisher document is a handy place to store items you think you'll need later when it stays the same regardless of where you are in your document. It's also a great place to store files as you're moving them around. It doesn't print and will be saved with the document so the files will be there next time you open the file.

### Quick draw

Instead of clicking a shape and dragging

your mouse to draw it, click the shape then click on the document. You'll get a perfectly proportioned default-sized shape that you can then drag to size.

### Creating multiple shapes

When you need to create more than one of a particular AutoShape, click the Control key as you click the shape you want to create. New drag the shape in the document. Hit the mouse and drag again and again to create as many copies as you want. If you hold the Shift key as you drag the shape, you'll get nicely proportioned shapes. Unfortunately, our previous quick draw tip won't work with shapes, but this trick does work on text frames, picture frames, tables, and even WordArt frames. □

For more Publisher tips and tricks, visit our website. Her columns appear regularly in a number of publications in Toronto, Canada, U.S. and the U.S. Contact Helen at helen@helenbushley.com.

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P 100 15450MHz	\$3259
P 100 15500MHz	\$3269
P 100 15550MHz	\$3279
P 100 15600MHz	\$3289
P 100 15650MHz	\$3299
P 100 15700MHz	\$3309
P 100 15750MHz	\$3319
P 100 15800MHz	\$3329
P 100 15850MHz	\$3339
P 100 15900MHz	\$3349
P 100 15950MHz	\$3359
P 100 16000MHz	\$3369
P 100 16050MHz	\$3379
P 100 16100MHz	\$3389
P 100 16150MHz	\$3399
P 100 16200MHz	\$3409
P 100 16250MHz	\$3419
P 100 16300MHz	\$3429
P 100 16350MHz	\$3439
P 100 16400MHz	\$3449
P 100 16450MHz	\$3459
P 100 16500MHz	\$3469
P 100 16550MHz	\$3479
P 100 16600MHz	\$3489
P 100 16650MHz	\$3499
P 100 16700MHz	\$3509
P 100 16750MHz	\$3519
P 100 16800MHz	\$3529
P 100 16850MHz	\$3539
P 100 16900MHz	\$3549
P 100 16950MHz	\$3559
P 100 17000MHz	\$3569
P 100 17050MHz	\$3579
P 100 17100MHz	\$3589
P 100 17150MHz	\$3599
P 100 17200MHz	\$3609
P 100 17250MHz	\$3619
P 100 17300MHz	\$3629
P 100 17350MHz	\$3639
P 100 17400MHz	\$3649
P 100 17450MHz	\$3659
P 100 17500MHz	\$3669
P 100 17550MHz	\$3679
P 100 17600MHz	\$3689
P 100 17650MHz	\$3699
P 100 17700MHz	\$3709
P 100 17750MHz	\$3719
P 100 17800MHz	\$3729
P 100 17850MHz	\$3739
P 100 17900MHz	\$3749
P 100 17950MHz	\$3759
P 100 18000MHz	\$3769
P 100 18050MHz	\$3779
P 100 18100MHz	\$3789
P 100 18150MHz	\$3799
P 100 18200MHz	\$3809
P 100 18250MHz	\$3819
P 100 18300MHz	\$3829
P 100 18350MHz	\$3839
P 100 18400MHz	\$3849
P 100 18450MHz	\$3859
P 100 18500MHz	\$3869
P 100 18550MHz	\$3879
P 100 18600MHz	\$3889
P 100 18650MHz	\$3899
P 100 18700MHz	\$3909
P 100 18750MHz	\$3919
P 100 18800MHz	\$3929
P 100 18850MHz	\$3939
P 100 18900MHz	\$3949
P 100 18950MHz	\$3959
P 100 19000MHz	\$3969
P 100 19050MHz	\$3979
P 100 19100MHz	\$3989
P 100 19150MHz	\$3999
P 100 19200MHz	\$4009
P 100 19250MHz	\$4019
P 100 19300MHz	\$4029
P 100 19350MHz	\$4039
P 100 19400MHz	\$4049
P 100 19450MHz	\$4059
P 100 19500MHz	\$4069
P 100 19550MHz	\$4079
P 100 19600MHz	\$4089
P 100 19650MHz	\$4099
P 100 19700MHz	\$4109
P 100 19750MHz	\$4119
P 100 19800MHz	\$4129
P 100 19850MHz	\$4139
P 100 19900MHz	\$4149
P 100 19950MHz	\$4159
P 1	







# Maximize Your Office, Minimize Your Cost!



## IPC Select 1700 879-84/75-13

- Intel® Pentium® 4 processor 1.70 GHz
- 1GB MB DDRAM
- 60 GB Hard Drive
- Solo32 CD-Rewriter
- ATI Rage Fury 54MB AGP Graphics
- 10/100 LAN Network
- Integrated 3D Sound
- 5.1 Speakers with subwoofer
- Windows Keyboard and Mouse
- Microsoft Windows Me (with CD)
- Corbis WordPerfect® Office 2002
- 17" Monitor

- Upgrade Package 1**  
Upgrade to 1x10x48  
CD-Rewriter...\$49.00
- Upgrade Package 2**  
Add 1x DVD ROM...\$29.00

**\$1489.00**

Or Lease for \$57/month



Free Onsite Consultation available (Greater Toronto Area only)

## Entry Level 2800 Server 879-84/75-13

- Intel® Pentium® III processor 800 MHz
- Dual processor capable
- Intel® Lanyard® Server Board
- 256 MB Integrated L2 ECC Cache
- 256 MB ECC RAM
- 18 GB (7200 RPM) SCSI Hard Drive
- Integrated Intel® PNC 100
- SCSI IDE CD-Rom
- Windows Keyboard
- Microsoft Intelli-Mouse
- 4 PCI 1.5A Slots

**\$1599.00**

Or Lease for \$23/month



## Workgroup 3100 Server 879-84/75-13

- Intel® Pentium® III processor 800 MHz
- Dual processor capable
- Intel® Lanyard® Server Board
- 256 MB Integrated L2 ECC Cache
- 256 MB ECC RAM
- 1x GB (7200 RPM) SCSI-SCSI Hard Drive
- **NOT AVAILABLE**
- Integrated Intel® PNC 100+
- SCSI IDE CD-Rom
- Windows Keyboard
- Microsoft Intelli-Mouse
- **REDUNDANT POWER SUPPLY**

**\$2399.00**

Or Lease for \$43/month

## IPC Universal 5-800 879-84/75-13

- Intel® Celeron® processor 500 MHz
- 256 MB SDRAM
- 30 GB Hard Drive
- Solo32 CD-Rom
- 10x48 24x24 CD-Rewriter
- Amplified Speakers
- Integrated 3D Sound
- Windows Keyboard and Mouse
- Operating System not included
- 17" Monitor

### Upgrade Package 1

Upgrade to 40GB Hard Drive...\$29.00

### Upgrade Package 2

Add Microsoft Windows ME...\$125.00

Add Microsoft Windows XP...\$179.00

**\$649.00**

## IPC Universal 1000 879-84/75-13

- Intel® Pentium® III processor 1GHz
- 256 MB SDRAM
- 20 GB Hard Drive
- Solo32 CD-Rewriter
- Intel® 30A2P Graphics
- 10/100 LAN Network
- Amplified Speakers
- Integrated 3D Sound
- Windows Keyboard and Mouse
- Microsoft Windows Me (with CD)
- Corbis WordPerfect® Office 2002
- 17" Monitor

### Upgrade Package 1

Upgrade to 40GB Hard Drive...\$29.00

### Upgrade Package 2

Upgrade to 1x10x48 CD-Rewriter...\$49.00

**\$959.00**



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